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The Charm of Discovery

FREDERICK B. HODGES

EMERSON said, "All men are poets at heart." Some of us discover our poetic sense early, others late in life; but to all it is an interesting discovery, and to most of us, charming. Indeed, our lives might be said to consist of days of discovery, and while much of it seems trivial and unimportant, underneath all, is charm. None of it, however, would mean much to us, if we were not "poets at heart." Our poetic sense is very, very precious and, even though brief, the poem we discover, as we read nature's text, is God's gift, and it comes to us with a message of a perfect beauty—a perfect life that should be our goal.

When the May breeze knocked at my door, and I followed her voice and found a rare wild-flower in the spring-woods, a very pure sense of charm accompanied the discovery. Another day, afar off, over the fields, it was just a glint of light along the old fence, a lovely, tinted cloud in the depths of the blue sky, nearby the peaceful bit of shade cast by the lonely pine, the fragrant dampness of the warm spring-wind. Oh! these were discoveries of rare charm. It is nature's poetry and simple beauty that is charming, and in every phase of it, some esthetic emotion is appealed to. The meanest fields breathe forth her elusive charm, if we will but discover it.

I have walked the lonely stretches of a barren field, with a sense of novel, but very real pleasure. A strange, wild sadness possessed me, and yet there was a thrilling sweetness in its bleak mystery. The unkempt grass was brown and red, warmed in great waves by the evening-light. In the distance, the wood of pines was dark against the sky. Beside me the shadows glided silently, and my heart was filled with the discovery of a new charm.

As one poet has expressed it so fittingly and truthfully, "Beauty was lent to nature, as the type of Heaven's unspeakable and holy joy."

Each day she shows us fairer scenes, each day a deeper charm, if we but know the secret. Is it strange, then, that somewhere in the storehouse of our mind we keep the recollections of days with nature? Ah no! though long years intervene, we cannot forget when with reverent step we walked beside the brook in the valley, when we roamed in the meadow with the warmth of spring caressing us. We cannot forget the days when all nature burned with the fires of autumn, and our beloved fields and woodlands were painted with a wonderful and beautiful harmony. These things can never fade from the memory.

Whether we tread the lowlands, or roam toward the upland places; whether we walk beside the little shaded rills, or rest under the oaks at the forest's edge; whether we are traversing the winding roads, or loitering in the sunlit meadow, there is a fascinating spell cast over us. Call it the charm or beauty of the seasons, the freshness of spring, the warm delight of summer, or the mellow glow of autumn, if you will. It may be any or all of them, BUT IT IS NONE OF THEM, WITHOUT LOVE.

A Pasture-Road

Beautiful Canada creek, forever curving with charming grace, through field, woodland and marsh! A fund of rich content is stored close to this friend of the open, myriads of shadowy fancies are gleaming in the mellow greenness that flecks its breast. Its dreamy willow-borders are filled with visions. Ah! this brook that haunts the forests dim, that winds like a ribbon through the meadows, and broods quietly in the marsh. Wherever it lies, however it runs, it breathes perpetually of mysterious delight.

On a fragrant April-day I wandered here, listening to songs that seemed to come from the very soul of the stream. I found the cattle standing in the cool water of a shallow bend, a picture of content and quiet happiness, and here

XUM

A PASTURE-ROAD FREDERICK B. HODGES

I found the little road by which they came. A narrow, sandy road, with woods on each side, a bit of nature's loveliness. The charm of this discovery comes to me afresh, as I write. Simple? Ah yes, simple indeed; but something was there of the unexplainable magic that stirs the soul, something from the green heart of nature, that our memory holds dear evermore. The bare spring-woods were sweet and fresh, suggestive of the witchery of nature, so soon to clothe them in all the lovely shades she knows so well.

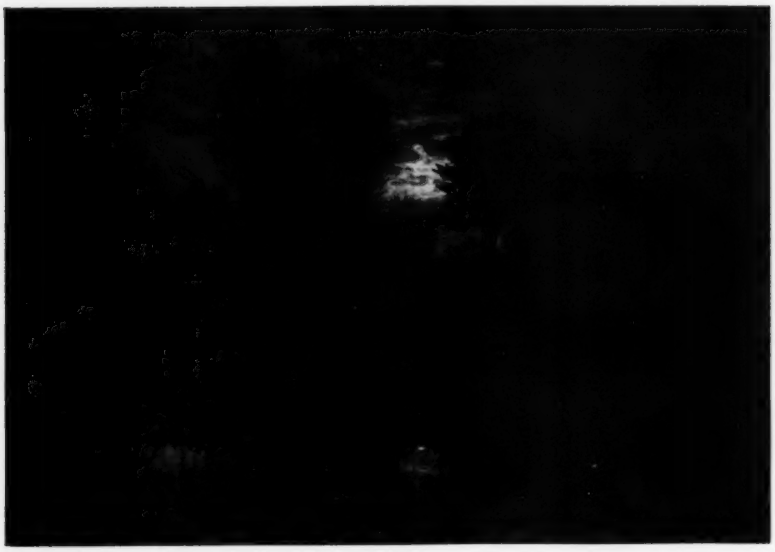
There was a dainty, half-hidden charm in the road's deep sand, filled with the footprints of the cattle, and spread broadcast with scattered lights and shadows. Up along its winding way, in dreams we follow the cattle, past the bars, and on along this road where all things are fair to see to those who have eyes to see.

Few discoveries of worth will be made, unless we are filled with the spirit of the scene. At times the face of nature is sad, but appealing still. It may seem dreary, but never commonplace. Nature never fails to impress us; we cannot walk in the dark, crowded forest, when the big winds are wailing overhead, without a keener appreciation of her mystery. When I walk beside the shining waters of the brook, an undergleam of charm pervades me that I cannot describe. At some time, in some way, a hint of these feelings gets into our pictures. Sometimes they lie so deep, and are so hidden from our reasoning power, that while we sense their importance, we cannot define them. They are like the stillest of sounds, as Keats has beautifully expressed it,

> "A little noiseless noise among the leaves,
> Born of the very sigh that silence heaves."

THE OLD FARM-ROLLER

FREDERICK B. HODGES



THE DESERTED HOUSE AT SUNSET — FREDERICK B. HODGES

The Old Farm-Roller

Life is holy, its days are holy, and how much more so, if haunted by the pleasant paths of the days that are gone. There were many things along these paths, the sloping fields and purple distance, the peaceful south-wind and the restful refrain of the murmuring trees, the fragrant night and the soft darkness—all filled to overflowing with a pure and lovely mystery.

Does the love of it all never whisper in your heart? Over one of these pleasant paths I walked one day in November. A spirit seemed to breathe through the air—the spirit of the waning year. It seemed to roll with the dark clouds in the western sky, and glow between them with a yellow softness. Over a bit of rising ground, a boy was driving an old farm-roller, and here I saw again this tender spirit. It touched the boy, the brown old roller, the plodding horses and their blowing manes. Was there a charm in this discovery? Ah yes, the charm is unfailing if, on the current of life, we drift along nature's ways at such a time as this.

We cannot learn nature's lessons, or find her pictures, unless we think for ourselves. It is not what we read, though we should read, it is not what we observe, though we must observe—it is what we think and are able to see.

If we love nature as we should, we seem to look through her beauty to eternal things. Indeed, nature-love is an empty thing, if through it we do not see God.

The Deserted House at Sunset

In the old days a bit of paradise was here, but now it is an empty nest that slumbers in the quiet dusk. The solemn pines, its faithful guardians, stand grim and dark against the evening-sky. Their ghostly rustle in the silence whispers of the lost days of old,—days when some sweet childhood was sheltered here, some precious lives that held this old home dear. Its radiance shone out for them with a loving glow, a sunny path led to its door, nearby the murmuring brook was full of cheer, and in the distance the fair fields called enticingly. Buried in the evening gloom, with gaping door and empty, staring windows, with deserted rooms and sunken roof, it is only a skeleton of departed joys. The fireside warmth is gone, dim phantoms fill the house, dead leaves strew the floors, blown in and scattered by the whisking wind with dismal sound, like voices of unrest echoing through its rooms.

And yet, beneath its darker gleam, in this old house of tender memories, we see a satisfying stream of joy, of comfort and of truth, that stirs within us a responsive note. The fragrant gifts of fields and flowers and trees, the never-failing

XUM

wonders of the day and night, the unchanging mystery of the pines against the sky, the memory of the happy host which gathered here. Our lives are like this old brown nest, which after its years of service is folded in the lengthening shadows of the evening, and slowly sinks to rest. The same resistless, silent power, bears us onward from the first day of our house on earth, through its spring, its summer, to the fading days of autumn, life's evening, when its brightness is of a heavenly purity, with hushed and gentle shadows like those of departing day.

Such a discovery as this puts one in a reminiscent mood. There are no riches like the dreamer's riches. As we pass by the days, and life falls from us, O never let it be with a sigh; let there always be a song in your heart. Courage and hope, not fear and doubt, are in the cheering clasp of nature's friendly hand.

Moonlight at the Old Farm

The old farm is the haunt of happiness. The joy of nature broods over its fields of waving grass, its woodland's shadowy ways, and its meadow of poetry. When my fancy leads me here, I turn my feet into the old path, the trail of many yesterdays, and follow the brook with its winding ways and sweet sounds, its soft, grassy banks and fragrant alder-borders. I mark the brooding stillness of the stream, and wish for its secrets. Here in its nest under the tall, dark pines, it is a brook of glowing quietness, and I think of the words of Homer: "Soft as some song divine, thy story flows."

If we could know the secrets of this brooding brook, or all the fancies that float in the wind-washed skies, if we could see the wonders the blue hills see, it would be too much. It is enough if we can learn to appreciate all we are able to comprehend. Men fail to gather the rich charm everywhere about them, they pass by the sweetness of daylight, its precious worth unrecognized.

Let us give our hearts to the brook of glimmering vistas, let us listen lovingly when the winds sweep and echo through the forest, let us look with devotion into the distance so soft and deep. I know the old farm in all the changing seasons of the year, when the fleecy greenness of spring haunts its woods and meadows, when the bright jewels of summer gleam along the waters of its brook, when autumn's display is on, along its wooded ways. I have been to it in what Goethe calls, "The twilight of morning," in the golden noon, and at the reddening close of day, but I have felt the charm of discovery most keenly in the solemn splendor of the moonlight, when the day with all its charms and revelations was gone, and night was dreaming of the day to come.

Along the little knoll above the pleasant pasture, were nestled the buildings old and gray, and in the marshy pool below, their mirrored image lay. Behind the long outlines of the pines, with great clouds floating across it, was

> "The moon like a flower,
> In Heaven's high bower."

There is a stillness in my soul, as I gaze on this moon among the worlds so far away, yet seeming to hover quietly just across the marsh. Its lyric spell glows in my heart, its tender grace fills my eyes with dreams. The charm in this discovery I cannot tell, its flame burns within me, but cannot find expression in words.

The Birch-Trail

If you have seen the morning-light on the birch-trail, you have seen the gentlest of all woodland-paths at its best. The forest-wind steals along its way as it leads us on among its slim silver-sentinels, a dainty footway framed in green and white. So much of the beauty and wonder of nature is expressed in little things; there is a wealth of charm in the little trails, the little brooks, the little flowers.

Sweetness and enchantment reign supreme along the birch-trail, and their tender imagery is traced every foot of the way. Such a soft, gray way in spring; such a warm, green way in summer; such a quiet, brown way in autumn, such valiant, glistening guardians. A sweet spirit hovers near its ever-waiting doorway, and beckons us on and on.

There are quiet, pleasant streams that flow near the birch-trail, the grave light of the forest overspreading them; but we have no desire to stray aside from this path of gentleness, whose voice of love holds us, and tells us that around each distant curve there are dreams of which no whispered sound has reached us, visions that will thrill us anew.

You may discover the birch-trail when your heart is singing with the cheer of morning, or when it is filled with the sweet stillness of mid-day, or when the spirit of evening is drifting over it, and its way is checkered by the twilight-shadows. It matters little—the hour, the season,

> "The summer-light, the winter-shade,
> Each on my heart some gift has laid."

'Tis well to stop awhile, and let its spirit grow upon you, be engulfed in its waves of charm. It is in your blood to love this trail, it invites your

XUM

MOONLIGHT AT THE OLD FARM — FREDERICK B. HODGES

soul to yearn for solemn depths and finer charm beyond.

Perhaps, the greatest charm comes with the discovery of your power to discover. The charm of any discovery in nature's beautiful places, lies not in outward beauty, the green of the woods in spring, the russet brown of the fields in autumn, or the world clothed in winter's whiteness, but in their effect on our inner consciousness. It is only as we are swayed by the poetry in our natures, that we come to a full enjoyment of the great out-doors.

"The poetry of earth is never dead," and never should we let it die out of our hearts. If your imaginative sense is stronger than your neighbor's, if you feel with more intensity the mystery of nature, you will discover many things of charm that he will not. Listen to Longfellow's words,

> "It is the soul that sees, the outward eyes
> Present the object, but the mind descries."

There was a day when you were suddenly impressed with the luminous paleness of the sky at the horizon, another day when, with the last signs of winter still about the fields, a thousand little pools mirrored the wonders of the sky. Still another day, when in the clear, fresh light of morning, you saw the first quiver of the water over the lake. Something new, something glad, greets us as we stray into the sweet places of nature, through the little hills with soft dreaming breezes beside us, in the woods where sleep the leaves of many years, away, over the untracked fields where the winds have raced through all the seasons, along the margin of the chiming brook. Our cares! where are they?

> "I lost them yesterday,
> Among the winds at play."

No matter what your quest in nature's shy retreats, the charm of discovery will be yours. The land flows with the alluring delights that only nature has to offer. "Earth is a gentle mother to the child," and we are all children in the presence of nature. But probably no one feels this charm more keenly, or with greater appreciation, than the maker of pictures. The

mission of pictures being to please and instruct—not simply their maker, but others—the charm of his discoveries extends to an unlimited number of people. His pictures must not be merely pretty, gratifying a passing fancy, but must live and grow as the years pass. To make this possible, their maker must love the ideal, must be sensitive to what many of his friends will call the unreal. Carlyle said, "Speak not at all, in any wise, 'till you have somewhat to speak; care not for the reward for your speaking, but simply and with undivided mind for the truth of your speaking." The value of this advice is obvious.

Applying this to picture-making, do not make a picture 'till you have in mind one worth while. Pictures mean more, many times more, than speech, because people frame them and place them on their walls, and read their message daily. Your high ideals, your beautiful thoughts, your appreciation of nature's mystery, speak to them constantly.

If your pictures express something of your feelings as you heard the voice of spring by the cool, green rippling stream, the soft wind brushing your cheek, as you roamed in the fresh wildwood, or reveled in autumn's riot of colors, if they mean in some degree, what you intend them to mean, you may be sure that they will point out these things to all who see them, just as the loving hand of nature pointed them out to you.

We should strive to accumulate the riches of the mind, and stop seeing only the surface of things. Then the charm of discovery will delight us wherever we are, in the country, the city, or in our homes.

The lure of the earth and air is a magical thing, nature is always yielding us fresh charm, and she is continually blessing us with her blessedness.

> "May I never face a dawn,
> With all the awe and wonder gone."

Do you know the muffled music of the wind at night? Have you been where the wooded glades slope toward the sunset, and the twilight spreads her shadows, with the sun slipping, slipping, down? Have you heard the song that runs through the tall old pines? Have you walked the lonely road at night, the little shivering wind following you? Have you found something of the hidden wonder, the beautiful mystery that drew you closer to nature, and made you feel sheltered in her arms? Ah! then you know something of what I have tried to make clear by "The Charm of Discovery."

The Move to the "Movies"

(Seventh of the "Professor Pyro" Talks)

MICHAEL GROSS

ALTHOUGH the statement may astonish you," said Professor Pyro, "it is, nevertheless, a fact that the phenomenon which underlies the entire structure of the 'movies' was known and discussed before the birth of Christ. I do not mean to convey the impression that, even in those early days, the 'Nickelodeon'—so dear to the childhood of many of you—flourished and took its toll of laboriously saved five-cent pieces. Far from it. But 'persistence of vision'—the optical law by which motion-pictures appear to move—was known to the ancients. The first recorded statement upon the subject was made by Lucretius in the year 65 B.C.

"This 'persistence of vision,' let me hasten to explain, is the name given to a peculiar property of the eye by which we are enabled to see a thing after it has really passed out of our sight. A better way to express the same thing is that when we view a moving object there is a brief delay in conveying—from the eye to the brain—the impression of what we see. The brain really 'sees' the object after it has passed. Now, if during the fractional part of a second that elapses while the image is telegraphed—so to speak—to the brain, a second progressive picture is placed before the eye, the sensation in our brain will be that we have seen the object move.

"If you have ever seen a boy in the act of twirling a burning stick, you will grasp my meaning more readily. In watching such a display, the effect, if you will recall, is of a continuous ring of fire. In truth, however, the eye is really seeing the stick in a series of leaps and bounds—intermittent action instead of continuous action.

XUM

"Were we to make a series of motion-pictures of this boy engaged in twirling the stick, it would require but a dozen or so pictures to show him completing the action. The first picture would show his hand at his side; the second with the hand raised a few inches; the third with the hand a little nearer the shoulder; and each successive exposure would carry the stick a little farther on its way over the boy's head. In viewing the result on the screen, we would get the impression of having seen the stick leave the boy's side and of having followed it until it was raised above his head. In reality, however, we have seen only a dozen distinct pictures of this particular action.

"When Professor Tyndall estimated that the time of the persistence of an impression on the retina was one-sixteenth of a second, or, in other words, that the eye would convey and the brain receive sixteen distinct impressions in one second, he gave us the mathematical basis of modern kinematography, and all motion-picture cameras are constructed to photograph and all projective machines are made to project the film at this rate of speed. But I fear that we are getting a little ahead of our story.

"Records prove that as far back as 1795 scientists were trying to find some way to produce the phenomenon of pictures that moved; but it was not until the year 1845 that anything even approximating this result was placed upon the market. In that year there was introduced in the United States a peculiar contrivance called 'The Wheel of Life.' It consisted of a cardboard cylinder—a hatbox with the top removed would give you the closest idea of its appearance—into the upper half of which vertical slots were cut at equal distances apart. Ten or more drawings, usually of a dancing girl, were then placed around the lower half of the inside of the cylinder. By revolving the contrivance rapidly on an axis which came up through the center—meanwhile keeping the eyes at the slots—one received the impression that the pictures inside were in motion. Although there was no photographic process used in connection with 'The Wheel of Life,' its action was based on the same principle as that of the modern motion-picture camera, and it deserves mention on that account.

"The next step in the development of motion-pictures came when Eadweard Muybridge, an American investigator and photographer, began his famous studies of the horse in action. His experiments were carried out in California, on the private race-course of Governor Stanford, whom Muybridge had persuaded to finance the undertaking. Muybridge used a battery of twenty-four cameras, the shutters of which were sprung by the galloping horse coming in contact with threads that had been stretched across the track.

"Muybridge's pictures were shown at the Photographic Convention held at St. James Hall in 1889 and, without a doubt, were the forerunners of motion-picture photography as we know it to-day, although records show that France had granted Ducos a patent in 1864 for a battery of lenses which, operated in rapid succession, showed successive stages of the movement of an object. Due to the fact that the dryplates of his day could not receive impressions with sufficient rapidity, Ducos had to drop his experiments and Muybridge reaped the benefit of them when instantaneous photography came into its own.

"The pictures made by Muybridge received world-wide notice, and inventors started immediately to experiment with various other methods to show pictures in motion. However, the universal obstacle at that time was that glass-dryplates were too bulky to work with; and, in consequence, no new developments of any importance were recorded.

"When Goodwin gave the world the first celluloid-film and Eastman began to manufacture it in quantities, this new photographic departure gave the quest for commercial motion-pictures a fresh impetus. Thomas A. Edison began to work on the problem and in 1893 he exhibited, at the World's Fair in Chicago, an apparatus which he called the Kinetoscope. This machine was capable of producing an indefinite number of negatives on a single, sensitized, flexible film, that was able to make forty-six pictures a second by actual test.

"To view the pictures made by the Kinetoscope, you dropped a nickel into the slot of the machine, placed your eyes at a peephole, and turned a crank. For your five cents you saw a series of motions of a scene that lasted for thirty seconds. However, the novelty of this device soon wore off, and Edison, himself, seeing that the Kinetoscope was doomed, began to devote his energies to perfecting a projection-machine.

"Before Edison accomplished this new task, W. Friese-Greene and M. Evans patented a machine for making photographs on celluloid. It made and displayed ten pictures a second on a continuous photographic film. Motion-pictures could be said to have a good start now, and the Friese-Greene machine was soon followed by the Edison Vitascope, which could be used to show pictures on a screen.

"In July 1896 Lumière's Kinematograph was exhibited at the Union Square Theatre in New

"THIS DO IN REMEMBRANCE OF ME." W. STELCIK

York and motion-picture photography arrived to stay. In 1900 the industry was being put gradually into shape, various minor improvements and additions were invented to improve the making as well as the projection of the pictures. To-day—a small matter of eighteen years later—the American people pay over three-hundred million dollars a year in admissions alone for this form of entertainment.

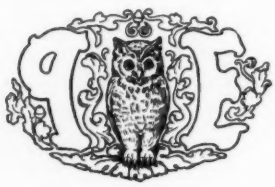
"Perhaps, a word regarding the method by which a modern motion-picture camera makes pictures may not be amiss. In the ordinary Kinematographic machine, a continuous band of flexible film is placed behind the lens. When the crank of the camera is turned, it does two things: it opens the shutter long enough to expose a film and feeds enough of the film to receive the picture appearing in front of the lens; then the shutter closes and—in the interval of darkness—the film moves forward again and a fresh surface is exposed to the light when the shutter is again opened automatically. A motion-picture negative film is one inch long and three-quarters of an inch wide and is supplied in rolls of from twenty-five to four hundred feet in length. A strip of film a foot long contains sixteen pictures.

"When the positive film—printed by contact from the original, or negative-strip—is shown upon the screen, a foot of film, or sixteen of the pictures, are shown in one second. The spectator, watching the picture, gets the impression that he has seen pictures throughout the entire second. In reality, the shutter of the projection-machine has thrown each separate picture on the screen for about one-thirty-second part of a second, followed by an interval of the same length of time during which the next picture is moving into place. This interval—or space of darkness, as I have explained—is so brief, that the first picture projected persists in the vision until the second picture comes on the screen and the object is changed to the next position.

"As a form of entertainment and an educational force, the motion-picture merits a position in the front rank of the world's activities. As a method of teaching history, geography and other studies it is of great value; for besides having the obvious advantage to teach through the eye instead of through the ear, the motion-picture by dramatizing a subject, makes it vitally interesting to the pupil and draws his attention to the subject in a way that a 'dry-as-dust' volume does not. I feel confident that the time is not far distant when 'animated text-books' will replace many of the present methods of teaching in the public schools.

"Now for a word with regard to the methods used in making motion-pictures. I suppose that you know that the night-views you see on the screen are all photographed during the day and then changed to moonlight-effects by dying the film itself blue; but did you know that motion-picture actors never wear white shirts, collars, or other white articles of dress during their work before the camera. Material of a yellowish tinge is used instead, for white gives too chalky an effect in the finished picture. Red rouge, if used, would photograph black so that a shade of yellow make-up is utilized instead.

"The trick-photography shown upon the screen usually falls into one of three classes. First, the pictures are made thirty-two to the second instead of sixteen, thus making all animated objects move about at exaggerated speed; second, the film is fed into the projection-machine backwards, thus showing boys diving out of the water onto a spring-board, men jumping from the ground to the roof of a house and so on; third, the method of elimination or substitution, the camera is stopped while a character either gets out of the field of vision or another character is substituted in his place. When the picture is shown on the screen the audience, viewing the film as a continuous movement and seeing a character appear in one scene and disappear in a succeeding one, gets the impression that he has vanished into thin air."



XUM

FEMALE REDWING BLACKBIRD FRANCIS HOBART HERRICK

An Ideal Method of Bird-Photography

FRANCIS HOBART HERRICK

MORE and more is Nature winning her way to the hearts of amateur and professional photographers. Landscapes are a source of quiet delight, but the photography of animal-life which calls for quick exercise of the mental faculties, physical effort and technical ingenuity, becomes a sport and a supreme diversion. In this connection, we have reprinted, for the benefit of PHOTO-ERA readers, parts of one of the most instructive chapters of the admirable work, "The Home-Life of Wild Birds" by Francis Hobart Herrick. This is but a small part of the wealth of technical information to be found in the volume. It is a pleasure to record that Mr. Herrick has accomplished, with brilliant success, the object of his patient efforts—not only as a keen and accurate observer of song-birds in their natural habitats, but as a clever and resourceful photographer. His remarkably interesting volume awakens in the reader, who is not already a nature-student, a desire to observe closely the habits of the song-birds during their nesting-season, how they feed and protect their young, teach them to fly and prepare them for life's important and precarious journey.

The several illustrations that accompany the extracts testify to the efficieney of Mr. Herrick's method—a method easily within the scope of the ability of the average camerist. It enables him to see with his own eyes at a distance of a few inches or feet, more or less, what birds do in or about their nests, affords him rare opportunities to make photographs—not merely a single picture or a chance snapshot, now and then, but an unlimited series of pictures to illustrate the behavior of birds in the fullest manner and at the most interesting period of their lives. It is often an easy matter to focus the camera directly upon the bird itself and to give a prolonged exposure when desired. Moreover, the camerist can approach as near as he wishes and make photographs of any required size without recourse to consequent enlarging. Among the one hundred and sixty photographs that embellish Mr. Herrick's book, there is not one but

XUM

shows the object and its surroundings in a favorable position, well lighted and sharply defined! No picture is a lucky snapshot, but a masterpiece made under conditions easily and quickly prepared. It is amusing to think that the shyest of birds have posed successfully and unsuspectingly before a camera hidden only a few feet away and before their very eyes! The method is available anywhere—in the woods, at the road-side or before a sand-bank. We will let Mr. Herrick describe his photo-equipment and methods in his own words.

"Photography has become so essential to the practice of the other arts and sciences, that the student need not suffer from lack of advice, or of detailed manuals which treat every branch of the subject. In the notes which follow, I shall confine myself mainly to the results of personal experience in working with the tent.

"THE OBSERVATION-TENT.—To satisfy the student and photographer of birds, the tent must not only afford a perfect means of concealment, but must be light, portable, easily adjusted and comfortable for the worker. The first tent constructed, which meets these requirements fairly well, and has seen service for five seasons, I will now describe. It is made of stout, grass-green denim, and with the frame weighs only six and one-half pounds. It can be pitched in ten minutes almost anywhere, and may be rolled compactly, and carried for miles without serious inconvenience. It is six and one-half feet tall, three feet eight inches long, and three feet wide—dimensions which will be found suitable for a person not much above the average height. One may spend any number of hours in it by day or night, with a fair degree of comfort—excepting in very hot or sultry weather—when exposed to the sun on all sides. I have suspended operations only once on account of the heat; but there have been occasions when to do so might have been better. More than once, I have found it a welcome protection from the rain.

"The tent-frame is in three pieces, two upright poles or stakes with folding cross-bars, and an adjustable ridge-pole. The stakes should be from six to six and a half feet long, and may be easily lengthened at any time, as when the tent is to be pitched in a swamp or over mud and water. They are pointed at the lower ends which are set in the ground, and capped above with an arch of sheet-iron to receive the ridge-pole. The latter is held in place with two pins or wire-nails, which are pressed through a hole in the iron-cap, and through the end of the ridge-pole into the upright stake. The eaves of the tent consist of a double-fold of cloth projecting half an inch, to each corner of which is sewn a covered brass-ring. When in position, the tent is guyed firmly by small cords fastened to each ring. The flaps are placed at one of the corners, and may be pinned together when in use. The free lower border of the tent is fixed to the ground by wire-pins, which may be pushed through the cloth at convenient places. From four to eight of these pins are needed, and each should be seven or eight inches long, and have a soldered loop at one end.

"The tent may be ventilated from above and made more comfortable on hot days by cutting out a large flap on each side of the roof, extending this a foot or less, and then guying each corner separately, at such an angle as to admit a free passage of air under the peak. For convenience, I prefer the simpler form. After working during the summer of 1899 with this tent, I saw for the first time the interesting work of the Kearton brothers, in which a different kind of blind is used. They devised an imitation tree-trunk, having a skeleton of bamboo rods and a covering of galvanized wire and green cloth, large enough to hold the photographer standing erect with his camera. The outside was painted in imitation of bark and decorated with moss and leaves. This was used in cases of nests placed on or near the ground in favorable situations. Mr. Kearton says that it would hardly do to set this up beside an exposed nest like a lark's 'in the middle of a bare ten-acre field,' and to suit such a case they constructed an artificial rubbish-heap, from which photographs were successfully made.

"Such devices are, of course, unnecessary when the nesting-site is brought under control, as in this case the birds must become accustomed to a changed environment, and the addition of the tent is a factor of no great importance. Then, again, the great heat of summer would prohibit their use in most parts of this country. No decoration of the tent is commonly used, and its color is a matter of minor concern. However, aside from the question of comfort, the advantages of the tent lie in its convenience and portability. It is a simple means to attain what is sought chiefly—perfect concealment. Possibly, the reason that it had not been adopted before, arose from the fact that the readiness with which many birds become accustomed to strange objects, or form new habits, had not been hitherto appreciated. What wild animals fear chiefly are strange sounds and strange objects in motion. All things at rest, whatever their form or color, are soon disregarded by birds, of which fact the reader will find abundant testimony. On the other hand, it is well to remember that individual

OBSERVATION-TENT FRANCIS HOBART HERRICK

and specific differences are very great, and one should not be amazed if some cases are found in which the tent or any similar blind will not work with success.

"THE TENT IN USE.—Some difficulty may be experienced to pitch the tent in exactly the right position with reference to the nest, without the necessity of further change. The factors to be borne in mind are the height of the sun, the focal length of the lens, and the position of the window to be made in the tent-front directly opposite the nest. The front of the tent should be parallel with the nesting-bough—when there is one—and the long axis of the latter should be parallel with the sun's course. The tent is placed so that the nest is in direct line, not with the middle of the tent, but with the window to one side. When the observer stands within, facing the nest, the window lies at his left, at one side of the vertical pole, and either just over the cross-piece or somewhere below it, depending on the height of the nest from the ground. The tent will not overshadow the nesting-bough when once set in proper position. If the focal length of the lens be six and one-half inches, and the nest that of a Cedar Waxwing which is mounted at the height of four feet, and the tent be so placed that the front of the lens is twenty-eight inches from the rim of the nest, we shall get a picture with adequate setting on a 4 x 5 plate. With lenses of longer focus—which it is advisable to use, if possible—it is not necessary to approach so near.

"When the position is determined, the tent-poles are set firmly in the ground, the ridge-pole adjusted and the tent-cloth thrown over it. It saves time to place one end of the peak in position and to draw the other over to its proper place. The cross-pieces are then lowered from the inside and the guys set loosely. A flap

XUM

STARTLED CEDAR-BIRD FRANCIS HOBART HERRICK

about six inches square is then cut with scissors in the front of the tent, to the left of the pole opposite the nest, which can be viewed through the opening. Should the position subsequently prove to be wrong, the poles may be raised together and reset. When everything is right, the guys are tightened and the free edges fixed to the ground with wire-pins, which will hold the walls taut and prevent excessive flapping when there is wind. It is often convenient to have the flap at the front of the operator's left, so that one leg of the tripod may project through it and thereby aid in placing the camera.

"The proper adjustment of the camera follows, the nest being the object focused upon until the old birds appear. I have found it advantageous to pin the focusing-cloth firmly around the camera so that it is always in position to use, and to stretch a piece of green denim on the side of the camera next the observer, fixing it between the front fold of the focusing-cloth and the tent so that it hangs vertically, and effectually conceals the operator when standing upright and setting the shutter. Peep-holes are made to command all directions, and, of course, the nesting-bough in particular to which attention is mainly given. It is convenient to make small V-shaped openings which can be pinned up or down. A bird will sometimes detect some movement of the eye when close to such openings, so that they should not be made larger or more numerous than necessary.

"When a photograph is made and the shutter is to be reset, the vertical flap is released from the focusing-cloth and drawn carefully over the window, if the birds happen to be at the nest, as when the female is brooding. Otherwise, if timid or unaccustomed to the new conditions, the movement of the hand may be a source of alarm. I have photographed, successively, family-groups without disturbing them, when at a distance of from twenty-eight to thirty-six inches, after they had learned to disregard the clicking of the shutter. When a window in a different position is wanted, the old one is patched up and a new one made.

"PHOTOGRAPHIC SCREENS.—The advantages offered by white or neutral screens are appreciated most where no good natural background is available, and especially when birds of dull or

YOUNG RED-SHOULDERED HAWK FRANCIS HOBART HERRICK

spotted plumage are to be photographed against a background which is spotted by foliage or by undesirable objects of any kind, which reflect the light strongly.

"To be of much service, the screen should be fairly large, and with frame and supports it is too cumbersome to be carried in the hand, except for short distances. Yet, one is often repaid for the extra trouble involved in its use by a series of clear-cut portraits, which could not be obtained in any other way. For ordinary purposes, a sheet of white cotton seven to eight feet long by six to seven feet wide answers well. This is tacked on a folding deal-frame and erected at a distance of from five to six feet behind the nest, or at a point sufficiently out of focus.

"PROTECTIVE SCREENS OR NETS.—Whenever the nest is in a vertical trunk of wood, as in the case of Woodpeckers, Chickadees, or the little House-Wrens, and this is mounted on a pivot, the whole may be defended easily from cats and other enemies by means of a flange of zinc or tin-plates, encircling the stump at the proper height, or projecting from the block to which the trunk is secured. Suitable protection is necessary.

"A circular enclosing-net may also be used, and this is necessary whenever a horizontal branch is supported on stakes. For this purpose there is nothing better than the common galvanized iron wire-cloth netting of one-quarter inch mesh. It should stand at least three feet high, and should be pinned close to the ground with wire-staples. To this, an overhang one foot wide—of looser poultry-netting—must be added all the way around. Such a screen is warranted to stop the cat, as well as every rodent and snake, large or small.

"CAMERA.—Any good long-bellows camera with reversible back will answer, the size and weight being the considerations of greatest moment. Most naturalists and sportsmen, who travel long distances and carry their own traps, find a 4 x 5 plate-camera the most convenient and economical. I commonly use this when working with the tent, but often prefer the 5 x 7 size, because it gives a larger and better picture of the object sought. The large camera with the heavy lens may be a drag on the mind and body of the most enthusiastic pedestrian; but one is usually repaid amply for the greater

XUM

trouble involved. However, for long journeys the lightest possible outfit is decidedly preferable. Moreover, in general field-work, a 3¼ x 4¼ film-camera is always in demand.

"In working at short range with lenses of moderate focus, the long-bellows camera is a necessity and, at the same time, it enables one to make full-sized pictures of small objects, as well as to use the telephoto-lens, should this be desired. The reversible back, making it possible to reverse the position of the plate without moving the camera, and often without disturbing the bird, is an adjunct of the greatest convenience.

"Although the best tools are always to be desired, excellent pictures can be made with a moderate-priced outfit, provided the lens is rapid enough. Nearly all of my own work has been done in the tent with the birds at hand; but in making high-speed exposures of birds or quadrupeds, when there is no lure to chain them to a given spot, a box-camera is needed. The lens should be of long focus, and the adjustments such as to enable the operator to focus and to expose as nearly simultaneously as possible. To meet these requirements, the twin-lens and reflecting-cameras—both of which are old inventions—have in recent years been placed on the market in improved and serviceable forms.

"The Lens.—In animal-photography, short and long-focus and telephoto-lenses are available. My own experience has been limited mainly to the following: Bausch and Lomb-Zeiss Anastigmat, Series IIa, 6½-inch focus, speed F/8; Convertible Anastigmat, Series VIIa, combined equivalent focus 8 inches, speed F/6.3; Extra Rapid Universal lens, Series D, 9 7/16-inch focus, speed F/6; Plastigmat, No. 4, 9¼-inch focus, speed F/6.8. The convertible anastigmats are convertible in two or three lenses of different foci, according as the single anastigmats are of equal or different foci. They thus combine in a single lens the possibilities of working with short and long foci, the greatest speed being obtained when each system of the doublet has the same focus. The cheaper lenses are equally serviceable for work in the field. In these, the rear-lens, which has twice the focal length of the doublet, may be used separately; but, of course, with a greatly reduced speed. Those who have worked also with the Goerz lenses of similar focus and speed will find little to be desired in the possibilities of the best photographic instruments.

"In photographing animals close at hand, the anastigmat qualities of a lens count for little. It is depth of focus combined with high speed which are most needed, consequently any lens that possesses these qualities is to be preferred. One of the most difficult problems in bird-photography has been that of approach within 'shooting' distance. The control of the nesting-site and the use of the tent offer a solution so far as life at the nest is concerned, in at least many species; and the tent in its general use does away with the need of the very long focus or telephoto-lenses.

"In photographing birds that are sitting, brooding or standing at the nest, there is no difficulty with an F/8 lens, which requires 1/25 second to expose the plate fully, at a distance of twenty-eight inches with wide-open lens and strong light. However, with scenes in which the actors are in constant motion, we require a much faster lens, which will reduce the exposure to at least 1/50 second. But little is gained in attempting to use long-focus lenses at such short distances, because, in stopping down the lens to ensure the proper depth of focus we are certain to sacrifice too much light. When large pictures (including more of the surroundings) are desired, better pictorial results are obtained by increasing the distance and using lenses of moderate focus. From perfect negatives, bromide enlargements are easily made.

"To photograph inaccessible nests, and birds which pose well but are unapproachable under ordinary conditions, we must resort to the long-focus and telephoto-lenses. The long exposure required for the telephoto-lenses now on the market, from one-half a second to a second or more, restricts their use to comparatively rare and lucky chances.

"The Tripod.—When two cameras of the 4 x 5 and 5 x 7 size are carried, a single tripod will answer for both, provided it is moderately firm about the head. A two-length tripod of medium weight will serve most purposes; but a shorter one is also required for nests on or near the ground. This is best made by cutting down one of the ordinary kind, rather than resorting to those of the multifolding type, which, unless made of metal, are constantly spreading and slipping at critical moments.

"The Shutter.—In photographing birds whose sense of hearing is well known to be acute, a silent shutter is next to a good lens in importance, especially when the camera is less than three feet away. The shutter which is silent not only in name but in actual use, and at all speeds, is still one of the greatest needs in the close-at-hand photography of animals, and especially of birds.

"At the first click of the metallic shutter birds will often jump into the air as if shot. Fortu-

BROWN THRUSH ON THE ALERT
FRANCIS HOBART HERRICK

FEMALE FLICKER ENTERING NEST
FRANCIS HOBART HERRICK

nately, however, the force of habit now comes to our aid, since they gradually learn that it is harmless, and may be safely disregarded. The iris-diaphragm shutter, which I have used, is often troublesome, in that some part of the sound arises at the very beginning of the exposure, so that a startled bird in the course of one-twentieth of a second may be all over your plate.

"The marks on all such shutters, which are conventional rather than exact time-measurements, differ in different shutters of the same or different make, and their limit of rapidity does not exceed '1/100 second.' For greater speeds, the focal-plane or some other very rapid shutter must be used.

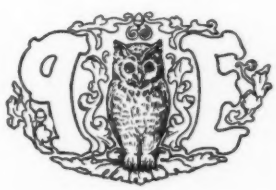
"PLATES.—For animal-photography the most rapid plates are none too fast, and any of the best brands can be recommended. It is always a good plan to adhere to one make which has proved satisfactory. One piece of advice should not come amiss, which is to use always fresh plates, and all of the same emulsion, if possible. If any doubt as to their age exists, test them before starting on an expedition. Old plates blacken along their edges in a characteristic manner when placed in the developer; and if deterioration passes this stage, the whole plate will fog. The dusting of plates, slides, and plate-holders before filling, and the carriage of all unused plates in a dust-proof bag, are as much a necessity now as ever. Much of my own work has been done in the country with darkroom and base of supplies close at hand. Under these conditions, it is not necessary to carry more than two or three dozen plates at a time. By developing on the day of exposure, it is possible to correct errors or fill up the gaps on the following day. When time-exposures can be given, orthochromatic plates offer advantages which should not be neglected; but when the exposure is necessarily rapid, the ordinary and moderate-priced plate is equally good.

"RECORD OF OBSERVATION.—It is perhaps unnecessary to suggest that all records of observation should be made systematically on the spot and with great care. Experienced students generally develop a system of their own, which in many cases suits their needs so well as to leave little to be desired.

"ACCESSORIES.—The minor articles which are needed to complete the bird-photographer's outfit, all of which can be rolled up with the tent or, better still, carried in a hand-bag, will be suggested by a little experience in the field. A saw, hatchet and nails are often required, as well as scissors and pins, the supply of which is always likely to run out, and a small hand mirror for use in setting the shutter from the rear. A toilet hand-mirror which can be turned at any angle is a convenient means to inspect the interior of nests inaccessible to the hand, but within reach of the mirror attached to a pole."

AS a noted portrait-painter has stated, you can no more know about art from reading about it merely than you can expect to know about music from reading about it. You must see pictures, you must see sculpture, you must see architecture, you must see the best art, to be benefited. By this, it is inferred that only meritorious works should be studied and that meretricious ones should be eschewed. Therefore, the student of pictorial photography will derive benefit from viewing, critically, the best works in painting, sculpture, architecture and pictorial photography; for there he will find exemplified not only accepted art-principles, but the motive that inspires the true artist and guides him to outward expression.

W. A. F.



XUM

Practical and Humorous Experiences in Photography

Part II. Developing, Printing and Enlarging

A. H. BEARDSLEY

WITHOUT a doubt—next to developing—printing is at once a source of delight and disillusionment. It is a delight when a clear, snappy print is the result; and a disillusionment when an apparently excellent negative yields a soot-and-white-wash or deeply mottled result. Most amateurs use a developing-paper, that is, a paper which after exposure to light in the printing-frame shows no picture until it is placed in a developing-solution, which brings out the image on the otherwise white paper. Of course, there are many other printing-processes, phosphate, platinotype, ozotype, blue-print, carbon, gum-bichromate, oil, ozobrome and bromoil. Of these, blue-printing is the only one that is of any interest to the average amateur. Indeed, this process is so simple that it is usually resorted to by all camerists who have neither incentive nor time—or both—to devote to other printing-processes. It is a veritable "add-hot-water-and-serve" method. Cold water and sunlight are the only means needed in addition to a printing-frame. Although I have my own opinion of an amateur who uses a fifty-dollar camera and makes all his prints on blue-print paper, I confess, without a blush, that my first pictures were all made on blue-print paper. The fact that I used blue-print paper is indicative of my general photographic intelligence, at one time.

The amateur who uses developing-paper for the first time is usually assured of an entire evening's entertainment or the opposite. The process is not difficult, but at times it may cause the embryonic photographer considerable perplexity. Three trays and a large pan or basin, one printing-frame, graduate, necessary chemicals and a piece of cheese-cloth constitute the required equipment for the first modest experiment. Fortunately, it is not necessary to carry on the manipulations in semi-darkness. So long as the packet or box of sensitized paper is shielded carefully from any light, all work may be done by daylight or artificial light.

Speaking of daylight, it might be well to interrupt the discussion of developing-paper long enough to call attention to the daylight-printing papers. These have the advantage that the image may be seen clearly at all stages of the printing and that a toning-bath enables the amateur to obtain tonal values that are at once beautiful and varied. There are so-called self-toning papers which may be fixed and toned in a plain hypo-bath. Next to blue-print, no printing-process is simpler than daylight-printing. Obviously, if there is no sun there can be no printing; hence the popularity of developing-papers which may be used day or night, regardless of weather-conditions. One word of caution to those using daylight-printing paper: be sure to tone all prints before showing them to admiring friends, else two or three days later the masterpiece will be a *faded* memory.

Briefly, the developing-process is carried on as follows: the printing-frame is grasped firmly in the left hand, the negative is placed in it, shiny side down on the glass—if the dull side is placed on the glass the resulting print will be the exact reverse of the original, left will be right and vice versa—next, the sensitized side of the paper is placed on the dull side of the negative—usually the concave side of the paper is sensitized and may thus be recognized—then the back of the printing-frame is clamped into position. Much of the evening's entertainment, and likewise disappointment, consists of trying to guess how long to expose the printing-frame to the light, before taking out the paper to immerse it in the developing-solution. If the exposure is too short, the print must be literally soaked in the developer, with the usual result that the paper becomes so sadly stained and the picture so faint that the print is ready for the waste-basket. On the other hand, if the exposure is too long, the picture fairly leaps out of the paper and, before the print can be removed from the developer, it is a stormy black. Between these two extremes lie several hundred variations of effect—one print may have some of them and another all of them. In connection with these "effects," it is customary to have at one's instant command several well-chosen, thoroughly satisfying expletives. It is well to have a repertoire sufficiently elastic to suit all requirements, namely, some to be used in the presence of ladies and others more vituperative to be employed when alone.

We will assume that the amateur is a fair guesser and that most of the prints when immersed in the developer yield satisfactory pictures. However, it will not do to remove them from the developer and gaze at them admiringly,

PRESENTING CONGRESSIONAL MEDAL TO LIEUTENANT-COLONEL WHITTLESEY — FRANK E. COLBY

as the developer continues to act even after the print is held in the hand. It is best to rinse the print in the tray containing water and then immerse it quickly in the next tray containing the fixing-bath. At the end of fifteen or twenty minutes, the print may be removed from the fixing-bath and admired at length before placing it in the large basin for its final washing. If running water is not obtainable, twelve to fifteen complete changes of water should remove all traces of hypo.

The next and last step is to remove the prints from the wash-water and to place them face down on a double thickness of cheese-cloth, which may be spread conveniently on top of a bed, if the amateur is a bachelor; otherwise, it is safer and more conducive to connubial felicity to spread the cheese-cloth on the kitchen-table. As printing is done usually at night, the next morning should find the prints dry, ready to be trimmed, mounted or pasted in the family-album. This, in brief, is the developing-process indulged by thousands of amateurs, and is the only process that most of them ever attempt.

Next to printing, in interest, is enlarging. Instead of placing the negative and paper in close contact in a printing-frame, the negative is placed in an enlarging-box or camera which by means of daylight or artificial light projects an enlarged image of the negative on a board set at right angles to the enlarging-apparatus. In short, the enlarging-box or camera closely resembles a stereopticon which projects pictures on a screen, with the difference that instead of a positive, a negative is projected. On the board—which corresponds to a screen—a large sheet of sensitized paper, known as bromide or enlarging developing paper, is fastened, the sensitized side being placed toward the enlarging-camera. The enlarged image of the negative is thrown on the sensitized bromide paper which, after a few seconds' exposure, is developed, fixed, washed and dried exactly in the same manner as the smaller contact-prints.

Enlarging-boxes and cameras are legion. The simplest and least expensive is one of box-form. The negative is placed in one end and the bromide or enlarging developing-paper in the other. The entire box is then taken to a convenient window or to strong artificial light and exposed like an ordinary printing-frame. The other extreme is an enlarging-apparatus built permanently as part of a darkroom and containing a powerful illuminant, condensing-

lens, long-draw bellows-camera and high-grade anastigmat or special enlarging-lens. Between the two, the amateur has many styles of equipment from which to select according to his fancy and pocketbook.

My first experience with enlarging was at a friend's house. The equipment placed at my disposal was of the latest type and consisted of a powerful arc-light encased in a permanent lamp-house and fourteen-inch condensor which carried the light in parallel rays to the negative-carrier of the well-built enlarging-camera equipped with a high-grade anastigmat lens. The enlarging-board to hold the paper ran on a carefully graduated track which afforded an unusually accurate adjustment. Previous to my acceptance of my friend's kind offer to allow me to use his outfit, I read thoroughly a handbook devoted to enlarging. Indeed, so thoroughly did I read this book that I remembered whole passages of it verbatim. When the evening arrived for my initiation to the fundamentals of enlarging, I felt well qualified to undertake the matter alone. My friend introduced me to his equipment and explained every point in detail, then, in accordance with our agreement he left me to shift for myself.

Not being much of an electrician, I felt a bit nervous about switching on the arc-light. After some hesitation I managed to turn the electric switch. Immediately there ensued such a sputtering, clicking and hissing within the arc-lamp that I turned off the electricity in haste, half expecting to be electrocuted the next instant. At length, after several such attempts I discovered that after a moment or two the arc-lamp stopped its noise and buzzed softly to itself in evident contentment. All went smoothly until I was ready to fasten the bromide paper to the enlarging-board ready for the exposure. The lens had a cap; but if I placed it over the lens it shut out the image of my negative on the enlarging-board. Moreover, there was no way to determine accurately where to fasten the bromide paper so that it would receive the entire image of my negative when the lens was uncapped. By chance I found that my friend used a lens-cap of heavy orange glass which when placed over the lens protected the sensitive bromide paper from fog and, at the same time, allowed enough light to pass through to project the image of my negative accurately on the enlarging-board. Later I learned that this lens-cap was part of the necessary equipment and that in no sense was it an original idea. At length, I was all ready to make the exposure. My paper was adjusted, the image was focused sharply and the lens stopped down correctly. With what I considered a deft movement, I removed the orange-glass lens-cap and began to count the seconds while the brilliant white image of my negative was projected on the bromide paper. So interested did I become in the evolution going on before me, that I leaned over inadvertently so that my head entered the beam of light issuing from the lens with the result that an excellent silhouette of myself nearly obliterated most of the enlargement. Again I made the attempt. This time I managed to keep my head out of the way; but in the flush of excitement over my success I immersed the exposed sheet of bromide paper in the fixing-bath instead of in the developer with the result that enlargement number two was ruined instantly. Just about the time my friend came down to find out what time I was going home, I managed to make one enlargement that might pass if examined hurriedly in a darkened room. Aside from the nervous strain I had undergone, during nearly three hours of "enlarging," I had burned up enough electricity to keep an office-building illuminated brilliantly the greater part of the winter and had spoiled enough paper and chemicals to make further enlarging out of the question, financially, for at least six months. Although my friend and I are on the best of terms, I have never received another invitation to use his enlarging-outfit.

To-day, enlarging is becoming increasingly popular. The advent and effectiveness of vest-pocket cameras have made enlarging fully as interesting and satisfactory as contact-printing. There are so many handy enlarging-outfits to be had at all prices, that the amateur's requirements, financially and otherwise, can be met readily and effectively. The camerist should not hold the mistaken idea that present-day enlarging is "messy" or too much for his limited photographic digestion. Any room may be used to do enlarging, provided that due care is taken not to injure the furnishings or the floor by careless manipulation of solutions. No branch of photography is more fascinating or interesting. There is nothing to match a well-made enlargement, suitably framed, for home-decoration. To the satisfaction of technical success must be added the perennial delight of personal association. As a big-game hunter displays his trophies of the chase, so the camerist takes pride in the enlargements that adorn the walls of his home. Needless to say, the enlargements that have associations, but not technical excellence, are hidden quietly in the ash-barrel and their coming and going is known to no man.

(*To be continued*)

WILLOWS BY THE WATERSIDE — WILLIAM S. DAVIS

Using the Camera in Springtime

WILLIAM S. DAVIS

THE arrival of spring brings fresh opportunities to the camerist in the choice of subject-material. Likewise it brings a few technical problems, due to the changeable season with its swift variations in the color of the foliage, strength of light and atmospheric quality. Since these conditions are, indeed, the very essence of springtime-landscapes, one is well repaid for any attention one gives to the technical side of the matter by the results it is possible to obtain.

On one day, the air is keen and clear, with a stiff breeze driving the scurrying masses of white clouds over fields and hills. Perhaps, on the next day, and after a night of rain, one may find shimmering reflections of the dripping trees in roadside-puddles; and, as the sun breaks through the morning-clouds and warms the moist earth, the arising steam bathes the scene in a luminous mist which softens the hard edges of even the nearest objects and, at the same time, subdues the receding planes still more, thus enabling one to obtain the much-prized aërial perspective in the picture. Even dull days, when everything is wrapped in a thick mantle of grayish-white fog, are productive of "effects" filled with pictorial possibilities; particularly, in neighborhoods where a few good foreground "bits" are ordinarily swallowed up amid a mass of distracting material. An architectural detail that has an attractive outline, when viewed *en masse*, is frequently presented most effectively against the soft-flat tones of a background enveloped in fog; and the perspective of a street-vista is nearly always improved by the presence of some haze. The same can also be said of woodland-scenes in early springtime—the softening-effect produced by an envelope of mist not only increases the tonal gradations by giving more differentiation between near and distant planes; but it lessens

XUM

EARLY SPRING WILLIAM S. DAVIS

the probability that a harsh, scratchy, quality will appear in the rendering of the numerous bare twigs and branches.

The main difficulty to handle subjects that feature leafless trees lies in obtaining sufficient massing of tones to unite the various parts into an effective composition. The introduction of a picturesque tree-trunk as a prominent foreground-feature will sometimes prove an aid to the line-composition; but, in any case, one has often to rely a great deal upon transient effects of light and shadow brought about by the presence of clouds, or of shadows cast by nearby objects. In the case of open landscapes which lack interesting foreground-material, although possessing a good middle-distance and skyline, it is advisable to keep the skyline low in the composition and to devote the greater space to a good cloud-effect, such as is seen frequently on a windy spring-day. Subjects of this character are very expressive of one phase of springtime-weather.

As the season advances and the fresh leaves appear, there are numerous chances to make most delicate foliage-studies. At times, the pale yellow-green tones in the sunlight are of nearly the same value as the gray-blue of the sky, which, although requiring care in treatment to avoid flatness and still suggest the delicate differences, allows the working out of attractive tonal schemes. However, one must be on his guard against being deceived by *color-contrast*, which under these conditions may be quite different from the *tone-contrast* between parts of a subject. The hazy sunsets of springtime offer still another subject worthy of attention, either in connection with an open-landscape or as a background to a screen of trees.

So far, I have said nothing about subjects other than landscapes which are expressive of the springtime-spirit; but the searcher for genre-compositions cannot fail to see possibilities around a farm, where the various operations of plowing, sowing, etc., afford a wide range of figure and animal-grouping in a landscape-setting. Then, too, the flower-lover will surely enjoy making seasonable studies of the early wild-flowers and various stages of plant-growth and tree-branches in blossom. Simplicity of

XUM

CHERRY-BLOSSOMS WILLIAM S. DAVIS

treatment is the great essential when dealing with plant-subjects of any kind; and as this cannot always be obtained when photographed amid their natural surroundings, it is sometimes necessary—if an artistic result is desired—to bring the specimens indoors, or otherwise transplant them, where a suitable background can be provided and the composition studied at leisure. Although trees in blossom are most enticing to the eye, they seldom make a satisfactory picture in their entirety. The absence of color in the finished print, combined with the great amount of scattered minute detail, fails to perpetuate the original impression received. For this reason, it is better to use only a branch or two —either in the open or indoors—and to work for pictorial quality of line and tone-spacing. As many workers have demonstrated, the results so obtained may be very beautiful and satisfying in their suggestion of spring; and the training in composition derived from handling material that is controlled in arrangement and in lighting is valuable to the worker.

So far as the photographic technique is concerned, there is not so much to be said to apply especially to work in springtime. Although color-sensitive plates or films are not essential during the early part of the season, I would advise their use. As more color becomes apparent with the growth of foliage and plants, a ray-filter should be used when practicable: its employment is especially essential when delicate relative values between pale greens and blue sky must be rendered carefully. Late in the afternoon, when the air is filled with sunlit yellow haze, the quality of the light often acts much in the same capacity as a ray-filter by subduing the blue rays in the atmosphere, to which photographic emulsions are abnormally sensitive. When a ray-filter is not used under such conditions, it is necessary to give about the same increase in exposure as a filter usually requires—even though the yellow sunshine appears bright

THE WILLOW-TREE WILLIAM S. DAVIS

XUM

YOUNG FOLIAGE WILLIAM S. DAVIS

to the eye. In this connection, I may say that it generally seems to be a fact that the actinic value of light of the same *visual* luminosity on a hazy or foggy day is greater in the morning than when the sun is at a corresponding angle above the horizon in the afternoon. In other words, the afternoon-light is usually more yellow than the morning-light.

To preserve the characteristic tonality of gray tree-trunks and the net-work of branches, a rather short scale of middle-tones must predominate in a picture; consequently, a full exposure should be given whether or not it is deemed essential to employ a ray filter. In many cases, a delicate diffusion of focus seems to help to suggest the soft, vaporous quality of atmosphere so often seen on quiet spring-days. There are several ways to obtain this—either in the negative or during printing—without resorting to the use of special soft-focus lenses, although these are quite suitable if at hand. A simple method to obtain general softness in the negative with any ordinary lens is to stop down considerably, and then to rack out the lens beyond the point of sharpest focus until the desired degree of diffusion is seen on the focusing-screen—the size of the stop determines the proportionate amount of diffusion in the various planes of the subject. When printing by contact, one or two sheets of celluloid interposed between negative and paper may be tried. An enlargement, especially upon rough paper, can be given pleasing softness of definition by putting the lens of the enlarger very slightly out of sharp focus. The main point to bear in mind, in all cases, is to suit the mode of treatment to the theme to be expressed. Neither soft-focus nor a sharp image is artistic in itself, although either may be an aid to that end, according to the effect required or the thought to be expressed.

XUM

A Talk About Lighting

PRACTICUS

LIGHTING the sitter is one of the most difficult subjects to discourse upon that could well be chosen, for so narrow is the margin between success and failure that it is not possible to give definite rules which will ensure the same results under different conditions; in fact, so far is this true that there is a legend that one successful portraitist abstains from having his windows cleaned lest the lighting should thereby be rendered too hard.

Nearly every competent writer on the subject has recommended the study of lighting to be begun with a plaster-bust, and with this I agree heartily. The only thing better would be to follow the example of Adam Salomon and have life-sized wax-figures with hair and clothes complete. A life-sized bust is not an expensive luxury, even in war-time, for I recently purchased one near Hatton Garden for five shillings. It was the head and shoulders of Gibson's Venus, and has not special pretensions to classical beauty; it is just a moderately good-looking young woman with a well-balanced head upon her shoulders. Busts with the head in unusual positions should be avoided, as the lighting which might suit them will not be useful for sitters.

Having procured our bust, the first thing to be done is to give it a coat of buff or very pale terra-cotta distemper, so that the light-values will be about the same as those of the living model. This is very important, as white plaster reflects far too much light for our purpose. The reason that I advocate the use of a bust instead of a living sitter is that the latter cannot keep still for the time required for study, and the student will quickly see how a slight movement of the head upsets all his plans for obtaining a certain effect.

The bust must be placed on a table so as to be about the height of an ordinary sitting figure, and in front of a plain, medium-toned background. It should be in such a position that a high sidelight falls upon it, the light being rather to the front of the object. In an ordinary span-roof studio this would mean that the dark blinds or curtains would be drawn over one end of the studio, both top and side, for about five feet. The bust should be about three and a half feet from the end wall, the next blind should be half-down and the next quite open; the sidelight is obscured up to nearly five feet from the ground, and is open for about a six-foot run. If we now examine the lighting, we shall find it fairly round, but rather contrasty. This is all for the best, for we can see readily the effect of altering the positions of the bust, the blinds and the camera respectively. One golden rule—by whom written originally, I know not—is that "light from the sitter's end of the studio gives contrast, whereas light from the camera-end gives softness." I cannot impress this fact too strongly upon the beginner. In ordinary circumstances, if the lighting is too harsh, open more blinds over the camera-end; if too soft, close them over the camera and open them near the sitter. This one rule is the key to simple lighting, and its application will prevent much floundering in the early stages. If we do not want to alter the blinds, we may move the sitter; if she goes further under the dark blinds, we get softness; if she comes forward, we get contrast.

Excess of top-light is the most common fault in portrait-lighting; but there are times when top-light is needed. A flat face with insignificant features calls for it, as Mr. H. P. Robinson says: "I think that I should use a good deal of vertical light in making the portrait of a Chinaman." If the sitter had strong features and deep-set eyes, such a lighting would be disastrous. We may now try the effect first of turning the bust to and from the light, and we shall see quickly how the modeling of the face is affected. As we turn the nose to the light, the further cheek becomes illuminated, whereas if we turn it away, it sinks into shadow. I would ask you to remember that neither the camera nor the sitter is screwed to the floor, so that you can obtain the same position of the head, but with very different lightings, by turning it until the desired effect is obtained, and then placing the camera in the position whence you observed it. Always keep your eyes open for accidental effects of lighting, and note the sitter's position in the studio for future use; some of these "observed" lightings are much better than those that are carefully arranged. I have found nearly always that the effects obtained with only dark blinds and clear glass are rather too vigorous for the ordinary run of work; hence it is very desirable to have in addition very thin white blinds or curtains so as to diffuse the light a little and tone down the glaring effect of the highlights. If there are no white blinds, an ordinary circular head-screen covered with thin cheese-cloth or pale-blue nun's veiling is very useful. The nearer

XUM

this is placed to the sitter, the softer will be the lighting, and vice versa. In studios which are so placed that direct sunlight falls upon the glass during any period of the day, white blinds should be used to cover all the glass. I have worked in this way in a studio that faced due west, on which the sun shone from 11 A.M. until evening. In such a studio, we must not have too large an expanse of white-covered window open at once, or we shall get flat negatives.

A point which should never be lost sight of, is that the actual design or pattern of the studio is of no moment. So long as the light can be made to fall upon the sitter at the desired angle, ridge-roof, single-slant, top-light, high sidelight will all give the same result, if handled properly. Much more depends upon outside influences; trees, walls, other buildings all serve to modify the lighting, and an arrangement of blinds that will suit the sitter in one studio, may fail to do so in another which is differently placed.

A lofty studio is not to be desired. I remember one clever photographer who said that he would work under a cucumber-frame, if he could. In a high-roofed studio the light is very difficult to control, as it is too far away from the sitter. Even, soft effects are obtained easily, but when any decided lighting is needed, it becomes necessary to close all the blinds and to use only the sidelight, and that only in a limited area.

A few words on unusual forms of studio may not come amiss. When working in a studio which only has top-light, the sitter must be placed well back under the dark blinds, and plenty of light admitted from the camera-end. It is also often advantageous to turn the sitter slightly to one side of the studio and to work the camera close to that side of the studio towards which he is looking, the background, of course, being placed diagonally across the corner. In a studio with only a high side-window, it is often necessary to place the sitter as close to the window-side as possible, so as to get the effect of top-light. If too low a sidelight be used, the eyes are filled with light and look flat. What is sometimes called a "miniature-painter's light" is a high frontlight. This gives a very even illumination of the face, but if managed properly, there should be sufficient shadow on one side to avoid flatness. If it be desired to copy the lighting in an existing photograph or even a painting, if by a good artist, the spark of light in the eye forms a reliable guide as to the position of the dominant light. If this be high or nearly in the center of the top of the iris, in the position of 11 o'clock on a watch-dial, for instance, it denotes a high frontlight, if in the position of 9 o'clock a low sidelight, and so on. In some fancy lightings, it may even be at 6 o'clock, which shows that the light comes from below.

I will now deal briefly with screens and reflectors. The head-screen I have already dealt with, as far as lighting the features is concerned, but it has other uses, such as subduing the light on white drapery. Nothing is more objectionable than to have a white dress brilliantly illuminated, making the face appear too dark and receding into the background. By use of the small head-screen this may be avoided, the shadow being cast where required. In some cases, a screen covered with a thin, open, black material is useful, as it will cast a shadow without diffusing white light in other directions. Reflectors are usually relied upon too much; only when the lighting is nearly satisfactory, but the shadows are too dark, should they be introduced, and then not placed close up to the sitter. In this position they destroy all the modeling on the shadow-side and give an unnatural appearance. It is unfortunately too common for the operator to make a hard lighting and then to use the reflector to even up the face. This is wrong, as it does nothing to subdue the overlighting on the other side. There is no need to be afraid of using a screen or white blind to soften the highlights, as it does not cut off any light from the shadows which are still receiving frontlight and reflected light from the studio. If the same exposure be given with the highlights screened, the negative can be developed for the shadows without the highlights blocking up.

In conclusion, I would caution the beginner against judging lighting by the eye alone. The negative is the only test. The plate does not see the sitter always in the same way as the operator does. Some plates have a tendency to intensify the light, whereas others soften it. The lens also has a say in the matter, a short-focus lens usually giving a more brilliant negative than a long-focus one does. This is due partly to scattered light in the studio, but it seems also to be caused by the distance between lens and plate. Naturally, the operator will see that his lens is clean, his camera blacked well inside and his darkroom-light beyond suspicion, before he begins work, or he is simply inviting failure in any attempt to obtain good lighting.—*The British Journal.*

ORIGINALITY in art is a quality eagerly sought, but never attained through seeking. It is an endowment, not an attainment.

Duncan Phillips.

EDITORIAL

Photography as a Safeguard

IT is asserted that the war has been won by photography. Whether this is actually so or not, it cannot be denied that photography has contributed in a very large measure to the magnificent success achieved by the Allied forces. This was shown clearly by the remarkable results accomplished by the aërial photographer, as described in the November issue of this magazine. Although these achievements form one of the most brilliant chapters in the history of photography, there are pages still to be written —trivial by comparison, to be sure, but pages which will record the application of photography in several important fields. One of these is photography as a safeguard, or as a means of identification. The use of a portrait-photograph as a part of a passport, or of a card of admission, is no longer a novelty; but there are many ways in which this practice can be extended.

First of all, is the consideration of the home. Every well-regulated family should have on hand as an immediate means of identification—in case of an accident or sudden death—a good photograph of every one of its members. If the family contains a large number of children and, for financial reasons, individual professional portraits are out of the question, recourse may be had to one group of the entire family with as many prints as there are members of the group. These photographs should be easily accessible and serve exclusively the purpose of identification. Almost every first-class illustrated newspaper should be able to reproduce, and publish as an individual portrait, any member of the group. It is also well not to depreciate the popular snapshot—the souvenir of a picnic-party or some other joyful occasion. It may be a godsend in the absence of a professional portrait. Similarly, to trace a family-pet that is lost, strayed or stolen, by means of an available photograph, should be an easy matter.

The owner of a valuable violin, for example, has every reason to feel apprehensive until he owns a good photograph of his treasured instrument which, if stolen, can the more readily be recovered. He knows that a precious Cremona has a way of disappearing mysteriously and of making very long journeys. A photograph that records the grainy surface and other characteristics of the instrument, will contribute greatly to a successful search. The same is true of an art-collector, who should have an album or portfolio of photographs of all his works of art, which will prove extremely useful in the event of loss by theft or fire. Or, should he lend a collection of his paintings to an art-museum, or an art-club, the album of photographic reproductions, together with written data regarding the history of each painting, will be a source of interest and add to the enjoyment of the pictures.

Photography may also serve to correct a source of discontent that prevails in social clubs having a large membership. On the occasion of a popular entertainment it often happens—unless strict watch is kept at the entrance—that uninvited guests gain admission and occupy seats to the exclusion of members who are obliged to stand. If a collation is provided, at the conclusion of the entertainment, these intruders—usually blessed with healthy appetites—aid materially in the astonishingly rapid disappearance of the refreshments, and the member who is inclined to be deliberate is thus deprived of his share of the repast. If every member in good standing were provided with a membership-card bearing his own photograph and he were obliged to show it when entering the club-house, or the auditorium on the occasion of a popular event, the trouble with intruders would soon be remedied. It would also prevent a thoughtless member from lending his membership-card to a friend—a challenge and a discovery, and the expulsion of the offending member would result.

Election-frauds, if not entirely preventable, can at least be greatly diminished by the aid of a system of cards each bearing a clear and fairly recent photograph of a voter, as well as his name, age and address. With the use of the Australian ballot—or any other good voting-system—one such photographic card-index can be utilized when the voter is given his ballot, and another when he deposits it. Voting on the names of dead men or of men unable to come to the polling-places, would thus be made virtually impossible, unless the election-officers fail to do their duty. The responsibility to provide suitable photographs of standardized size should fall upon the voters, thus saving the municipality or township considerable expense and also preventing a new system of private and official graft.

XUM

ADVANCED COMPETITION

Closing the last day of every month
Address all prints to PHOTO-ERA, Advanced Competition
367 Boylston Street, Boston, U. S. A.

Prizes

First Prize: Value $10.00.
Second Prize: Value $5.00.
Third Prize: Value $2.50.

Honorable Mention: Those whose work is deemed worthy of reproduction with the prize-winning pictures, or in later issues, will be given Honorable Mention.

Prizes may be chosen by the winner, and will be awarded in photographic materials sold by any dealer or manufacturer who advertises in PHOTO-ERA, or in books. If preferred, the winner of a first prize may have a solid silver cup, of artistic design, suitably engraved.

Certificates of award, printed on parchment-paper, signed by the Publisher, and suitable for framing, will be sent on request, and free of charge, to winners of prizes or Honorable Mention.

Rules

1. This competition is free and open to photographers of ability and in good standing—amateur or professional.

2. As many prints as desired, may be entered, ***but they must represent, throughout, the personal, unaided work of competitors. Remember that subjects which have appeared in other publications are not eligible, nor may duplicate prints be sold, or entered in competition elsewhere, before Photo-Era awards are announced.*** Prints on rough or linen-finish surface are not suitable for reproduction, and should be accompanied by smooth prints on P. O. P., or developing-paper having the same gradations and detail. All prints should be mounted on stiff boards.

3. *Unsuccessful prints will be returned only when return-postage at the rate of one cent for each two ounces or fraction is sent with the data.*

4. *Each print entered must bear the maker's name and address, the title of the picture and name and month of competition, and should be accompanied by a letter,* SENT SEPARATELY, *giving full particulars of date, light, plate or film, make, type and focus of lens, stop used, exposure, developer and printing-process. Enclose return-postage in this letter. Data-blanks will be sent upon request.* ***Be sure to state on the back of every print exactly for what competition it is intended.***

5. Prints receiving prizes or Honorable Mention become the property of PHOTO-ERA, unless otherwise requested by the contestant. However, this does not prevent the photographer from disposing of other prints from such negatives after he shall have received official recognition.

6. Competitors are requested not to send prints whose mounts exceed about 11 x 14 inches, unless they are packed with *double thicknesses of* ***stiff*** *corrugated board, not the flexible kind—or with thin wood-veneer.* Large packages may be sent by express.

7. Competitors who have won three first prizes within a twelve-month, become ineligible for two years thereafter. The too frequent capture of the first prize by one and the same competitor tends to discourage other participants and to make the competitions appear one-sided and monotonous.

Awards—The Spirit of Christmas Competition
Closed January 31, 1919

First Prize: None awarded.
Second Prize: Dr. Charles B. Piper.
Third Prize: Mr. W. Stelcik.
Honorable Mention: Lilian A. Guernsey, Paul Harrison, G. H. McKelway, K. A. Kjeldsen, R. J. Morrow, Louis R. Murray, Kenneth D. Smith, Leopold Zwarg.

Subjects for Competition — 1919

"The Spirit of Winter." Closes March 31.
"Rainy-Day Pictures." Closes April 30.
"The Spirit of Spring." Closes June 30.
"Miscellaneous." Closes May 31.
"Rural Scenes." Closes July 31.
"Shore-Scenes." Closes August 31.
"Outdoor-Genres." Closes September 30.
"Architectural Subjects." Closes October 31.
"Domestic Pets." Closes November 30.
"Indoor-Genres." Closes December 31.

1920

"The Spirit of Christmas." Closes January 31.
"Still-Life." Closes February 28.

Photo-Era Prize-Cup

IN deference to the wishes of prize-winners, the Publisher will give them the choice of photographic supplies to the full amount of the First Prize ($10.00), or a solid silver cup, of artistic and original design, suitably inscribed, as shown in the accompanying illustration.

Volatile Liquids.

AN important word of caution appears in *Photography* with regard to inflammable liquids. Bottles containing volatile liquids, especially liquids which give off inflammable vapors, should never be placed on a high shelf, but on one near the floor. The reason for this is that the temperature near the ceiling of a room is often very much higher than is realized by those below: and the pressure which is thus caused inside the bottle has more than once caused such bottles to burst, sometimes with serious results. Even if it did not, it might lift the stopper.

SECOND PRIZE
SPIRIT OF CHRISTMAS

"NOW FOR HOME!" CHARLES B. PIPER

Advanced Competition—Miscellaneous
Closes May 31, 1919

EACH year the Miscellaneous Competition offers the camerist a sort of pictorial safety-valve. By that I mean, that the camerist is unfettered photographically with regard to the subject he may send in for consideration. If for any reason, the subjects listed in PHOTO-ERA for competition fail to please him or if he is unable to meet the conditions imposed, the present competition gives him *carte blanche*. In popular parlance, "the lid is off" with regard to subject. Needless to say, interest of subject—whatever it may be—originality of subject, composition and technical excellence will weigh heavily with the jury. In short, because the camerist is at liberty to select his subject, it does not follow that he is free to ignore artistic judgment and technique.

Although landscapes are always of artistic value and interest, it should not be inferred that home-portrait, outdoor and indoor-genre, still-life, marine, camp, architectural, nature, speed and other pictures are unwelcome. The intelligent and well-equipped camerist need not go far to obtain real pictures of permanent value to himself and to others. However, "record" photographs are not desired in this competition. Try to decide whether or not the photograph you intend to send is of more than personal or local interest. This particular point is one for every camerist to remember in all his work for public exhibition at camera-clubs or in the press. Remember that there is a great world beyond your horizon that cares nothing for you unless you touch a sympathetic chord—something in common with what we can all comprehend and enjoy.

The Miscellaneous Competition offers an exceptional opportunity to the ambitious worker who is waiting for the psychological moment to enter the ranks of the "arrived" pictorial and technical photographers. There are many readers of PHOTO-ERA who have profited by our efforts to make photography—artistically and technically—appeal to the man or woman who desires a mode of expression that meets, in great measure, the yearning for the highest and best in art and nature. We admit that we do aim high. Some-

XUM

times, we are reminded to "come back to earth"; nevertheless, we have noticed that many beginners have become first prize-winners in these competitions and that they have given our editorial efforts full credit for their own steady progress and final success. Now is the psychological moment for ambitious beginners who have won their spurs in the Beginners' Competitions to enter the larger field offered by the present competition. Professional photographers, likewise, have an excellent opportunity to try their strength against many of the best amateur and professional workers in the United States and Canada. A reference to the rules which govern this and all Advanced Competitions will show that every photographer in good standing—amateur or professional—is welcomed heartily to any or all of these competitions.

The matter of the best presentation is one that demands your best critical judgment as well as your best executive ability. A print may be faultless, technically, and yet fail to make the right impression on the beholder. On the other hand, a print which in reality is faulty on the technical side may be filled with poetry and mystery—gaining and holding the interest which the merely literal could never arouse for a moment. It may be seen that this Miscellaneous Competition is not merely an opportunity to get rid of such prints as may be lying about the house. Above all, remember that your picture represents *you*, and that it will make its appeal in proportion to the time, thought and skill that you put into the making of it.

True art comes first from the heart and then from the mind. Technical knowledge of composition is invaluable as *a means* to express that which is beautiful, true and spiritual; but remember that of itself the technical is cold and lifeless. Your pictures may be perfect in workmanship, but if they fail to inspire, please or otherwise move the beholder, they have not, and you have not succeeded in true artistic photography. Emphasis is placed purposely on this point because of the many who fail to realize its truth. Conversely, it does not follow that because you are not a professional photographer you are incapable to produce winning pictures. Look to the inspiration of your effort. If it be strong, fine, true, beautiful and pure, you cannot fail. Such trivial technical mistakes as you may make are lost sight of in the appreciation of the appeal that you have tried to make with the knowledge and equipment at your disposal.

Whatever subject you select, do not forget that the things that are truly great are invariably simple. One flower-study beautifully composed is worth a dozen flowers grouped in awkward fashion. Likewise, one landscape that conveys one distinct impression to the beholder is worth many that may contain three separate compositions absolutely unrelated. It is very much like trying to see how many persons you can include on the plate or film—invariably some one's head or foot is omitted and the result is neither a group nor a portrait. Strange as it may seem, the simpler the composition, the more difficult it is to perpetuate. Those who may doubt this assertion will do well to try to photograph one flower, apple, vase, pair of gloves, tree, person or animal and make such a picture a delight to the eye.

Human nature is ever an interesting study. Often, it strives to attain freedom of action and thought, only to be nonplussed by the very freedom it has sought. As applied to these competitions, contestants sometimes write that for us to specify what the competitions shall be is a mistake, and that it has a tendency to nip photographic talent in the bud. Although it may be true in certain cases, we are still unconvinced that our statement in advance of subjects for competition is not the best method to pursue, after all. This Miscellaneous Competition is an excellent opportunity for those who may have felt hampered by our restriction of subjects. Needless to say, we are endeavoring to have these competitions serve our readers' interests to the very best advantage. If, inadvertently, we have suppressed the pictorial ambition of a budding genius by our usual method of classification, the present competition will offer him a much-coveted opportunity.

Indeed, we hope that all the pent-up pictorial emotions of many of our readers will find an outlet in a true and beautiful expression of the photographer's love of nature, humanity and spirituality. This competition represents the freedom of thought and action that some of our readers have hoped to obtain. It will be interesting to study carefully their pictorial use of this greatly desired freedom. In photography, as in other lines of endeavor, we turn instinctively to those subjects that we love most whenever we have the opportunity to do so. Unconsciously, we reveal a bit of our true character in so doing. Photographically, and otherwise, this is what we hope will make the present competition particularly desirable.

In view of the fact that this Miscellaneous Competition is the only one of the kind in 1919, we are especially eager to have our friends and readers avail themselves of the present opportunity. We are convinced that the time and effort required will be more than repaid by the possibility of winning a prize, and by the certainty to give not only themselves but others many pleasant and profitable hours of pictorial delight.

A. H. B.

Plateholders out of Register

In three out of four studios that I have visited in the course of the last year or so, I found the plateholders of the camera in general use out of register with the focusing-screen. The present use of rapid plates enables the photographer to use diaphragms to an extent that disguises considerably the lack of fine definition, resulting from the plate not being truly in focus. In the days of wet collodion—when, in order to obtain a portrait free of the unsharpness, due to movement of the sitter, it was the custom to use the lens at full aperture or nearly so—photographers had to be, and were, careful to see that their plateholders were accurately in register with the focusing-screen.

Although the lack of sharpness in the negative, due to the plateholders not being in true register, is less conspicuous when using the smaller apertures to which the use of rapid plates has accustomed us, it is still very desirable that the coincidence of position of the plate and the focusing-screen should be as complete as possible. This is advisable if only for the power obtained to get properly exposed results with the shortest exposures, particularly in the case of portraits of children. A photographer, the proprietor of a high-class establishment, doing a large business, writes me that since the correction of his plateholders his operator generally takes portraits of children with the open lens with excellent results, and with fewer failures and consequent economy of time and plates.

The plan which I employ to ascertain the accuracy—or lack of it—of the registry of the plateholders, is to take a strip of wood about three-eighths or one-half of an inch in thickness—rather longer than the width of the slide—and to drive a screw through it. The strip is laid across the front of the frame of the focusing-screen, and the screw advanced until the point just touches the

THIRD PRIZE
SPIRIT OF CHRISTMAS

UNDER THE CHRISTMAS-TREE W. STELCIK

screen itself. A plate is now put in the plateholder, and the slide is drawn. The strip is then laid across the front of the slide, and if it is in true register, the screw-point will just touch the plate. It is desirable to repeat this trial with the plate placed both vertically and horizontally, and with each carrier that may be in use with the slide. A waste negative is better than a plain glass for the purpose, as a faint scratch on the film will indicate very closely the coincidence of the two surfaces.

The reason for having the wood a little longer than the width of the slide is—as I have found in one or two cases—that the top or bottom or one of the sides may be higher or lower than the opposite side, and the extra length of the wood allows the screw to be tried on different parts of the plate. The screw is inserted at the place where it will come over the middle of the screen when one of the ends of the wood is just at the outer edge of the frame. This arrangement allows full use to be made of the extra length of wood for the testing the accuracy of adjustment away from the center of the screen. The extent of deviation from coincidence is ascertained by placing slips of card of different thicknesses between the point of the screw and the focusing-screen, or the plate as the case may be, until a piece is found of a thickness that just fills the space.

If it is the focusing-screen that is found to be nearer to the front than the plate, a cardboard-matte is cut of the same size outside as the ground-glass; about a quarter of an inch wide all round except at the corners, where it is rounded inside for strength. A photographer generally has a stock of old mounts of various thicknesses; but if there is not one of just the thickness required, one or more thicknesses of cartridge-paper may be pasted on to a thinner card, and when dry used for the purpose. The card-matte is dropped into the frame, and the glass replaced and the slip-beading pinned in again.

If it is the plate that is too near the front, slips of card are glued on all round to the rabbet of the plateholder. It may be that some of the carriers may require adjustment independent of what has been done to the plateholders. In this case they may be trued by gluing slips of card along the edges of the front, or, if the error is in the other direction, by reducing the thickness of the wood in the same place.

Of course, a neater job may be had by sending the slide and frame of the focusing-screen to a camera-maker or to an intelligent cabinet-maker, if—which is not often the case—the camera can be put out of use for the time; but the home-cure method described has answered perfectly well.

W. E. DEBENHAM, in *The British Journal.*

XUM

Dry-Mounting without Press or Tissue

No doubt in many respects dry-mounting by means of hot press and tissue is ideal; but it has the disadvantage of being rather expensive: and that, to a great number of photographers, is an insurmountable one. Not only is the initial outlay somewhat heavy, but there is a constant expense for heating and tissue. The method of mounting which it is proposed to describe is cheap, convenient, and requires no more expensive apparatus than an ordinary domestic flat-iron. Moreover, there is no bending or cockling of the mount, which last statement can be made of very few mountants in which water—in even small quantities—forms an ingredient.

The principle of the process is this: that when shellac is heated to about the temperature of boiling water it melts, and becomes very "tacky" at the same time. If, then, we give the back of the print a coating of shellac; and, when in contact with a mount, heat it to a temperature of 100° C., the print and the mount adhere, and a mounted photograph is the result. Moreover, since there is no evaporation of water there is no contraction, consequently no cockling, and the print and mount lie perfectly flat. This sounds, and is indeed very simple; but, like most simple things, there is a right and a wrong way to do it; and the writer wishes in this article to help fellow-photographers to avoid some few pitfalls out of which he has climbed during his experiments with the process.

The first thing is the making of the solution of shellac. Obtain one-quarter of a pound of common brown shellac, place it in a bottle, and pour in methylated spirit until the shellac is about half to two-thirds covered: that is, there should be eight ounces or nine ounces by volume of solution when the shellac is completely dissolved and thoroughly incorporated with the spirit; and the solution should run easily, but should be much more viscous than water. The shellac takes some twenty-four hours to dissolve, and the best way to hasten the process is to place the bottle in some warm position, such as the kitchen mantel-shelf, giving it a thorough shaking from time to time. For several reasons, a wide-mouthed bottle is most convenient to use.

The next step is the application of the shellac-solution. This should be done *before* the print is trimmed to the required size. It does not matter then if a little of the shellac creeps over the edge of the print onto the image-side. The solution is applied with a soft hair-brush about three-quarters of an inch wide, and a fairly thin, even coat is given to the back of the print. It is well not to err on the "over" side, otherwise when the heat is applied to the print the shellac will begin to ooze round the edge, and in the case of self-toning papers if there is too much methylated spirit present, it will begin to dissolve the film itself. This, by the way, is one reason why the shellac-solution should not be too dilute; another is that with insufficient shellac present, proper and *permanent* adhesion between print and support does not take place. If by some inadvertence a little of the shellac has found its way on to the surface of the print, it can be removed easily in the case of bromide and gaslight papers or printing-out papers by rubbing gently with a tuft of cotton moistened with methylated spirit; but this is impossible with most self-toning papers, as already shown, and it should be attempted very carefully with carbon and platinum-papers to avoid serious damage.

When the shellac is applied, the print should be left to dry for half an hour, and it may then be trimmed and mounted at once, or left for a few days or even several weeks, for the mounting. In this respect the process is very convenient, for a number of prints can be coated with shellac in a few minutes, and then left for an opportunity of greater leisure for the final operations. It should be noted, however, that the prints appear to adhere to the mount with the maximum of ease when the coating and mounting are done on the same day.

Now to the actual mounting, and in this part of the process there are more precautions to be taken than in any other; but after the first attempt or two, they become a matter of routine. The "press," as has been already intimated, consists of an ordinary flat-iron, but if it is equipped with one of those nickel-plated shields, it will be found much cleaner and more convenient to use. The iron is heated in the usual housewife's way, on the gas-range or on the stove, but not to so great a temperature as is necessary for domestic use. If too hot, there is a tendency to burn the shellac instead of merely to melt it, and the print curls so violently that it is difficult to make it lie flat on the mount. If the iron is too cold, then the shellac does not melt properly: it is difficult to get the print and the mount to adhere at all, and often enough, when cold, the print breaks away from the support, either in places or altogether. The right temperature is reached when, if the iron—without shield—is placed ten inches to a foot from the cheek, the heat radiating from it is just perceptible to the face. About twelve prints 3¼ x 4¼ can then be mounted before the iron becomes too cool. For a large number of prints, two irons worked in relays is a convenience.

To iron down the prints, a firm flat support, such as a kitchen-table, is necessary, and it is well to place on the top three or four thicknesses of paper which have been thoroughly warmed before the fire to drive out absorbed moisture. Between the print and the iron there should be a sheet of *plain*, thin paper, otherwise the iron will leave shiny marks on the print. This sheet of paper must also be thoroughly dried, by running the iron several times over it, to obviate any danger of its sticking to the print. Now, having made all preparations—which, although apparently numerous, in reality take but a few moments—the mount is put on the table, the print placed in position and held there while the sheet of thin paper is put on, and the hot iron passed steadily all over it—in a large print starting from the center and working to the edges. After the iron has covered the whole surface, raise the paper to see whether the print has adhered everywhere to its support, and if some corner or edge is still unattached, apply the iron with a moderate pressure for a few seconds particularly to that place. Sometimes, if the iron is a little too hot, it will cause the print to curl up. A gentle pressure of the fingers at the point will make it stick down properly as the shellac becomes cooler and more "tacky."

In using this method for *passe-partout* work—and for this it is particularly suitable—it is best to attach only the top edge of the "auxiliary" mounts and print, since the pressure of the glass ensures them lying flat when bound up; but care should be taken to dry the mounts well before ironing down, otherwise a little buckling will take place, owing to the rapid evaporation of absorbed moisture contained in the paper.

Perhaps it is hardly necessary to add that the print may be removed from its mount at any time should this be required, by passing a hot iron over the face of the print and then gently pulling it away from the mount, as the warmth makes the shellac melt.

W. J. CHERRY, in *The Amateur Photographer*.

THE CRUCIBLE

A MONTHLY DIGEST OF PHOTOGRAPHIC FACTS

With Reviews of Foreign Magazines, Progress and Investigation

Edited by A. H. BEARDSLEY

Amidol versus M. Q. for Bromides

We have heard many discussions amongst professional photographers as to whether Amidol or M. Q. is the more suitable for bromides, and there appears to be considerable divergence of opinion. While many workers are producing perfect results with Amidol, we are inclined to think that from a commercial point of view the M. Q. developer is to be preferred. The quality of blacks produced by either is equally good, and the tones in the sulphide or hypo-alum baths differ very slightly.

With Amidol, a great deal depends upon the skill and care of the worker in daily compounding the developer accurately, whereas the M. Q. can be made up in large quantities of constant strength and stored for convenient use—a point that will be appreciated by those who run more than one studio. The disadvantages of using Amidol are, for brevity's sake, tabulated below, and in common fairness we will admit that most of these can be met by the careful personal attention of the skilled man. It is needless to call attention to the great value of technical photographic knowledge.

1. Temptation to guess the proportions of Amidol, Sulphite, Potassium Bromide and Water.
2. Bad keeping-qualities of the mixed bath, and the daily risk of particles of dry Amidol settling on drying prints or negatives.
3. Great susceptibility to the action of potassium bromide, consequently when large batches are developed, the liberation of bromide from the paper introduces an element of uncertainty.
4. Rapid contamination of the fixing-bath, unless the prints are washed after development, and risk of staining the gelatine or paper base.
5. Quick staining of the fingers and finger-nails.

With M. Q., the making-up of the developer can be a once-a-week job, by the darkroom expert, if possible, making the solution double strength and storing it in 80-oz. bottles. There is no daily weighing out or measuring, as the developer only needs mixing with an equal part of water when required for use. The strength is constant, and the prints can be developed by time, a method that produces perfect results. The fixing-bath does not become quickly discolored, nor are the finger-nails stained.

The formula for M.Q., recommended for use with papers and postcards is:

Monomet	1 oz.
Hydrochinone	4 oz.
Sodium sulphite (crystals)	2 lbs.
Sodium carbonate	2 lbs.
Potassium bromide	1½ ozs.
Water	4 gallons

Obtain a three-gallon jar three-quarters full of hot water, add the Monomet first, stirring until dissolved, then add the Hydrochinone, sulphite and bromide, stirring until all is dissolved. Add the carbonate last. Have eight clean 80-oz. bottles at hand, and with a measure or bottle fill them to equal height with developer. Then add water to fill the bottles and stopper them.—*Rajar, Limited.*

Luminous Wrist-Watches Fog Plates

The convenience of the luminous wrist-watch is proved by its use in the military forces at home and overseas. Many of these watches are now used by civilians, including amateur and professional photographers. According to *The Amateur Photographer* an experimenter was amazed to discover to what degree the luminous watch affected a sensitive plate or film in the darkroom. Among other things, the experimenter found that if such a watch was exposed for one minute to an undeveloped plate, a clear image of the dial appeared when the plate was developed. Even when a plate was protected by black paper, the effect of the luminous wrist-watch was apparent; although, of course, after much longer exposure. Twenty-four hours after a plate was exposed to a luminous wrist-watch a blackening of the plate corresponding to the shape of the dial was noticeable. Cardboard and tin-foil failed to offer protection. It is evident that the radio-active rays from luminous wrist-watches have a high degree of penetration.

Ghost-Images or Flare

It is a fact that many of the finest pre-war anastigmats frequently give both ghost-images and flare when used on subjects which throw a strong light into their glasses. The defect is much less often met when single lenses or the single components of convertible anastigmats or rapid rectilinear lenses are employed. "Ghost-images" or "flare" are regarded by many photographers as being the more likely with lenses having many glass-to-air surfaces; and, as a matter of fact, although not as a general rule, the more of these surfaces there are in the lens the more likely is the defect to be in evidence in certain classes of work. It is not realized as well as it might be by those who possess anastigmats which exhibit flare or ghost-images that much may be done to assist in eliminating these defects if the lens is provided with a sufficiently deep hood. We have in our own possession an anastigmat with no less than ten glass-to-air surfaces, and invariably when this lens is used against the light—or under like conditions—the defects are sure to manifest themselves; yet, when the front glass is shaded with a deep and efficient hood we have never had the least reason to complain. The rarity of ghost-images or flare when rapid rectilinear or single lenses are used may be traced in part to the fact that with the former class the hoods are much more efficient; with regard to the latter, when the single components of the convertible anastigmat are employed it is nearly always the front lens that is removed, and thus the mount of the lens serves as a highly efficient hood for the back glass.

The British Journal.

To Safeguard Important Keys

Important keys are usually flat. Photographic reproductions are good to have in one's wallet in case of loss. These are quickly made by substituting the key for a negative in a printing-frame. The developed print will show the keys as if on solid black background.

The Sabean.

BEGINNERS' COMPETITION

Closing the last day of every month
Address all prints to PHOTO-ERA, Beginners' Competition
367 Boylston Street, Boston, Mass. U. S. A.

Prizes

First Prize: Value, $2.50.
Second Prize: Value. $1.50.

Honorable Mention: Those whose work is deemed worthy of reproduction with the prize-winning pictures, or in later issues, will be given Honorable Mention.

Certificates of award, printed on parchment-paper, signed by the Publisher, and suitable for framing, will be sent on request, and free of charge, to winners of prizes or Honorable Mention.

Subject for each contest is ***"Miscellaneous";*** but original themes are preferred.

Prizes, chosen by the winner, will be awarded in photographic materials, sold by any dealer or manufacturer who advertises in PHOTO-ERA, or in books.

Rules

1. This competition is open only to beginners of not more than ***two*** years' practical camera-activity, and whose work submitted here, is without any practical help from friend or professional expert. A signed statement to this effect should accompany the data.

2. Workers are eligible so long as they have not won a first prize in this competition. Winners of the first prize automatically drop out permanently, but may enter prints in the Advanced Class at any time.

3. Prints eligible are contact-prints from 2¼ x 3¼ to and including 3¼ x 5½ inches, and enlargements up to and including 8 x 10 inches.

4. As many prints as desired, in any medium except blue-print, may be entered, but they must represent the unaided work of the competitor from start to finish, and must be tastefully mounted. ***Subjects which have appeared in other publications are not eligible, nor may duplicate prints be sold, or entered in competition elsewhere, before Photo-Era awards are announced.*** Prints on rough or linen-finish surface paper are not suitable for reproduction, and should be accompanied by smooth prints on P.O.P., or developing-paper having the same gradations and detail.

5. *Unsuccessful prints will be returned only when return-postage at the rate of one cent for each two ounces or fraction is sent with the data.* ***Criticism on request.***

6. Prints receiving prizes or Honorable Mention become the property of PHOTO-ERA, unless otherwise requested by the contestant. However, he may dispose of other prints from such negatives *after* he shall have received official recognition.

7. *Each print entered must bear the maker's name, address, instructions, the title of the picture and the name and month of the competition, and should be accompanied by a letter,* SENT SEPARATELY, *giving full particulars of date, light, plate or film, make, type, and focus of lens, stop used, exposure, developer and printing-process. Enclose return-postage in this letter. Data-blanks will be sent upon request.* ***Be sure to state on the back of every print for what contest it is intended.***

8. Competitors are requested not to send prints whose mounts exceed about 11 x 14 inches, unless they are packed with *double thicknesses of* ***stiff*** *corrugated board—not the flexible kind, or with thin wood-veneer.* Large packages may be sent by express.

Awards—Beginners' Competition
Closed January 31, 1919

First Prize: Alfred S. Upton.
Second Prize: T. P. Payne.
Honorable Mention: A. Dubee, Henry A. Pratt.

The Photographic Awakening

ALTHOUGH the number of all-the-year-round amateur photographers is on the increase, the fact remains that most camerists confine their photographic activities to the spring, summer and fall seasons. For this reason, April virtually marks the beginning of the amateur photographic season in the greater part of the United States and Canada. Those who have joined the ranks of beginners are eager to make their first exposures out-of-doors under balmy spring-skies. In short, this month there is a stirring about and a general restlessness among all lovers of the camera and nature. In the parlance of sportsmen, we are all more or less afflicted with photographic "spring-fever."

Virtually all successful human activities have their inception in careful thought and planning. The amateur or beginner who is really desirous to make a success of his camera-work during 1919 should take himself aside and ask, "Do you consider your camera a plaything or do you see in it wonderful possibilities for your intellectual and physical well-being?" It is not my intention to make the beginner or the amateur photographer feel his photographic responsibilities so heavily that he loses all spontaneity of thought and action; but I do feel very strongly that photography is too much of science and an art to be treated merely as a toy to while away an idle hour. I know from experience that the beginner or the amateur who puts his very best thought and effort into all his photographic work is the one who will enjoy his camera-work the most and make the best pictures as well. In other words, photography merits the best thought and effort that a man or woman can put into it; and, for this very reason, each step should be preceded by careful and practical preparation. Let the beginner set a photographic goal worth striving for and then bend every energy to reach it—the rewards are commensurate with the sincerity of the effort.

In planning his photographic work, the ambitious beginner should take his own and the limitations of his equipment into consideration. By that I mean that the owner of a moderate-priced box-camera should not attempt work beyond the range of such a camera. On the other hand, the more fortunate possessor of double-extension camera fitted with an anastigmat lens is in a position to undertake virtually whatever he may choose to photograph. However, as I have pointed out so many times, it is the man or woman behind the equipment that is the deciding factor with regard to results. An expensive camera in the hands of a person who will not master its proper manipulation is a direct loss to photography; first, because such a camerist is no credit to himself or to photography; second, because he is depriving some ambitious worker of the use of an excellent outfit. The amateur who is determined to make something of himself photographically can get remarkable results even with a

FIRST PRIZE
BEGINNERS' COMPETITION

CONSTANCE — ALFRED S. UPTON

pinhole-camera, because his mind and heart are in his work, and every limitation of equipment is a new incentive to excel in spite of every obstacle.

There is an old saying which counsels those who aspire to fame, "not to bite off more than you can chew." In other words, the beginner or the amateur should plan his summer's work well within his own powers and within the technical capabilities of his photo-equipment. It is far better to make a success of the simple problems first and reserve the more difficult ones for later attention. The beginner, especially, should be well satisfied if during his first season he has mastered the art to make a simple, well-composed snapshot. He will have opportunities enough later to make time-exposures, speed-pictures, flashlights and autochromes. Despite all that may be said to the contrary, I do not believe that the science and art of photography can be mastered in one season. Excellent progress may be made by the intelligent beginner; but for his own good he should not think that he can master a subject that involves scientific accuracy and the best in art. The sure road to photographic success lies in the thorough mastery of each step in the technical and artistic preparation of a picture—and this requires months, not weeks.

My own tyro-days are still fresh in my mind, and I remember well my second photographic season. The previous year I had done fairly well with my little Brownie, and in April of my second year I determined to improve my outfit and likewise myself. To this end, I purchased a folding hand-camera fitted with a good rapid rectilinear lens. "Surely," I reasoned to myself, "this new outfit will enable me to make rapid progress this coming summer. Last year I learned how to develop and print my own pictures; this year I can devote to the study of composition, light and shade and the artistic work of other photographers. In short, during my first season I mastered my camera and technical photography; now all that I need to do is devote a season to the artistic principles involved and I shall be master of the entire subject."

To make a long story short, the time I expected to

devote to the study of art-principles was given exclusively to the attempt to master the fine art of focusing! Like many another beginner, I assumed that the more I paid for a camera the less manipulation there was to it—in fact, the camera became virtually automatic after one paid a certain price. That second summer I arrived in the country imbued with art; I lived, moved and had my being in the rarefied air of a genius about to bring a waiting world to his feet; but to save my life I could not produce a picture that was correctly focused. Finally, I came back to earth. Art was all very well in its place; but it had no abiding place with me the rest of that summer. Although a world still waits to be brought to my feet by my artistry, I can focus a camera as well as any man!

The beginner will do well to specialize during his first season with a camera. By that I mean that he should select landscapes, outdoor-portraits, marines or natural history—one class of subject, whatever it may be—and confine his efforts to obtaining the best results in his chosen field. Of course, there will be times when he will like to attempt something else; but if he confines himself to the same or similar subjects for one season, he will—or should be—fairly well grounded in at least one class of work. On the other hand, if he photographs as suits his fancy, he will be "jack-of-all-trades and master of none." The intelligent camerist soon realizes that the more that he knows of photography, the less likely become his chances to become master of all of it. However, by selecting whatever branch is most congenial, he can still make a name for himself and derive much pleasure and satisfaction from his photographic work.

Sportsmen and amateur photographers have one characteristic in common—both derive an immense amount of pleasure from anticipation. Just as the fisherman mends and renews his fishing-tackle preparatory to his trips after the wily trout, so does the amateur photographer inspect his camera and renew his stock of supplies to be ready for the early spring-days afield. Now is the time to prepare. Soon the call will come for the camera, lens, shutter, film-pack adapter and plateholder, and the camerist will do well to make sure that each item in his photo-equipment is ready to function properly. Amateurs who contemplate the purchase of a new lens, shutter or entire outfit should make haste; for they should remember that new lenses, shutters or other new equipment cannot be obtained or fitted at a moment's notice. Manufacturers and dealers are willing to do their best; but the camerist should use judgment and consideration. There is every indication that 1919 will be one of the busiest years that the photographic industry has ever experienced. For this reason, every camerist should overhaul his equipment without delay and place his order for any new goods that he may require.

In the foregoing paragraphs I have endeavored to set beginners and amateur photographers of one or two years' experience to thinking seriously about their picture-making. If I have stirred them up to a realization of the responsibility that they shoulder to make good for their own sake and that of photography, I feel sure that in time they will agree with me. Today, photography is too much of a science and an art to be treated lightly; and the sooner that beginners, amateurs and professional photographers face this fact, the sooner will every one of them get more out of it. Those of us who try to keep in touch with photographic progress throughout the world are more than ever convinced that photography is worthy of our deepest respect and our best in thought and deed.

A. H. B.

To Find the F-Numbers

An exposure-meter of some kind should be in the possession of every amateur; it will soon save many times its cost in material. But no exposure-meter can be used unless the photographer knows the F-value of the stops in his lens; and many lenses do not have their stops marked with this important information. In such a case, there is nothing for it but to find out for ourselves what is the value of each stop.

To do this accurately enough for exposure-purposes is very easy. The F-number of a stop is merely the number of times the diameter of the opening in the stop is contained in the focus of the lens. If we know both the focus and the diameter, we can get the F-number by simple division. But knowing one or the other is not sufficient; we must know both.

To measure the diameter of the opening we must first unscrew the glasses of the lens from the mount, so as to be able to get at the stop. When removing the lenses we must be careful to note where each belongs, if there are more than one: so that we may be sure to replace them correctly.

Then, a triangular piece of thin card may be cut, three or four inches long, with one end a little wider than the largest opening in the stop, and tapering away to nothing at the other end. Putting the point of this in the opening of the stop, we push it in until it just touches the edge of the opening, in the center, with its two sides. We mark on the card where the stop touches it; and proceed to measure the other openings of the stop in the same way. By measuring the width of the strip of card at any one of these points, we are able to learn at once the diameter of the particular opening.

We can deal with the widest opening first. Taking a strip of card or paper with a straight edge, we proceed to mark off along that edge a series of points, starting at one end; each point being separated from its neighbors by a distance exactly equal to the diameter of the largest opening of the stop. Starting from one end of the strip, these can then be numbered 1, 2, 3, 4, etc. If we know the focus of the lens, all we have to do is to measure off from the "1" end of the strip, and see to which of these numbers the focus extends. If it reaches to "8," the lens with that stop will be working at F/8: if it comes halfway between 6 and 7, it will be working at F/6.5, and so on.

We can prepare similar strips for the other stops and find their F-numbers in the same way. It will probably be found that every other stop has an opening just half or double the diameter. Thus, the largest may be three-quarters of an inch, and the next but one will be three-eighths of an inch in diameter. If this holds good all through the series, we know that each stop in succession, from large to small, will require double the exposure of its predecessor; because if the diameter of the opening is one-half, its area is one-fourth, and so only admits one-fourth as much light.

If the focal length is not known, we must find it out. If the camera is one of fixed focus we can ascertain the F-number of the stop near enough for our purpose by putting the strip marked off with the stop-diameters on the top of the camera, getting the end from which the numbers start as nearly as possible exactly over the front surface of the plates or film in the camera and having the other end of the strip out over the lens in front. Then the particular mark on the strip, which, as nearly as we can judge, is over the stop in the lens, will be the F-number.

In other words, the focus of the lens is approximately the distance from the stop to the plate or film when a

BASHFULNESS — T. P. PAYNE

SECOND PRIZE — BEGINNERS' COMPETITION

distant object is in focus. This is not true of all lenses: with certain very special forms it would be altogether wrong. But with all the lenses likely to be owned by the beginners it will be near enough.

The approximate focus can be found also by taking out the lens and using it as a burning glass, the focus being the distance from the stop to the point at which the heat is at its greatest. If the camera has double extension, we can find the focus by focusing some object near enough to the camera for its image to be the same size as the original. When this has been done we measure the distance from the surface of the ground-glass to the original, and the focus will be this distance divided by four.

The F-numbers obtained in this way with most lenses will be slightly larger than the exact ones. Thus the stop which in this way we find to be F/16 may actually be F/14 or F/15: so that the lens is really a little faster than the method gives it. The difference is not a very great one, however, and is one in the right direction. That is to say, if the F-numbers so obtained are used to find the correct exposure, we shall be giving a little more exposure than we need. As the tendency is always to give too little rather than too much, this will cause no harm in most cases.

I mention the fact that figures ascertained in the way described understate the rapidity of most lenses, because I am often the recipient of letters from photographers who have measured the openings of their stops, and found that the lens is apparently slower than it claims to be. It is not very likely that this is so; although, of course, it might be. But the method here described is not sufficiently accurate to base upon it a claim that the maker has misrepresented the rapidity.

The cause of the error is that when the stop of the lens has glasses on both sides of it, as it has in all but single lenses, the glasses condense the beam of light, so that actually a wider beam is passed than the mere measurement of the opening in the stop would indicate. To check the maker's figures, we have to find what is called the "effective aperture" of the stop, which demands a more elaborate method than that which has just been described.

Having in this way ascertained the F-value of each of the stop-openings, a careful note should be made of them; so that whenever the exposure-meter is in use, we may know what value to allow for the diaphragm or stop-opening. It is a pity that photographic lenses are ever sent out without the F-number being marked upon them.—R. C. B., in *The Amateur Photographer.*

XUM

OUR CONTRIBUTING CRITICS

YOUR CRITICISM IS INVITED

Whoever sends the best criticism (not over 150 words) before the twentieth of the current month, will receive from us, postpaid, a copy of "Pictorial Landscape Photography" by Paul Lewis Anderson, price $1.50.

MANY rather commonplace scenes make quite artistic pictures. This one does not seem to merit that distinction. The water and sky are nearly of the same tone, and as they occupy so much of the picture-space, this makes the general lighting seem flat and uninteresting. The effect is relieved somewhat by the reflections; but this again is marred by the obtrusiveness of the boat in the foreground. Placing the boat nearer the wharf—say, well within the area of the reflection—would help to lead the attention to the main objects of the picture. In this case a little could be spared easily from the foreground, a little from the left and perhaps some from the right. Pointing the camera directly toward the strongest light is rarely necessary or advisable and does not seem best in this case. A view-point more to the right, with attention to other suggestions given here, would emphasize the main features of the scene with evident improvement of the picture.

ALBERT M. SHAW.

THIS print has all the earmarks of a "snapshot," made on the impulse of the moment, without regard to composition or light-conditions. The grouping is poor; the boat in the foreground stops the eye from entering the picture. The mooring-post at the right draws the attention that way and so on, out. The hazy group of huts with their maze of piles is very confusing. It is hard to tell where the piles enter the water. The print does not carry out its title. The pleasure-boat in the foreground is the only thing in sharp focus. The print is considerably overexposed, the highlights veiled, and is very gray in tone throughout. There is no suggestion of distance; sky and water, and foreground and background, are all dull gray.

H. J. SHIPTON.

AS I look at the picture it looks like a storage-shed on the dock. It might be that the maker of the

THE PICTURE CRITICIZED THIS MONTH

picture did not choose the right point of view. The tone of the sky and water is of the same uniform tone; the horizon-line is hardly seen. And it would have been better to wait until the water showed some movement, even if it was only a little ripple, for this would give graduation in tone to the water. The picture seems to me to be "busy." The boat in the foreground and the huts, as they are called, hold strong positions in the picture-space: the eye looks first at the boat and then at the dock and back to the boat again. The piles at the end of the dock form short parallel black lines—one cannot tell just where the pile and water meet. No doubt this picture was made on a dull day when everything looked gray. It is possible that a day when the light would be brighter would give a picture with a better graduation of tones. I would recommend another exposure from a different point of view and not try to include so much in the picture-space.

H. Ernest Bliss.

Why is the boat so prominent in foreground? The size is disagreeably exaggerated; besides, its angle is at cross-purposes with the lines of the rest of the composition, and forms only a tantalizing obstruction of the view. If the camerist had gone more to the right, or even to the left, and nearer the dock, the whole thing would have been better apportioned and more satisfactory; the tone is monotonous, the water looks almost solid,—that and the lack of any visible life makes the subject uninteresting as a picture. Remove the boat, trim half an inch off the top and half an inch from the bottom is an alternative suggestion, the lone post at the right forming a not unpleasing balance to the heavier part of the buildings and solid, very solid reflections.

Maude Paget.

The tonal qualities of the picture are excellent; but there is no principal object in the picture, the boat and the building about equally dividing the interest, and the post and its reflection at the right margin draws too much attention to itself. The picture would be improved if the boat and post were eliminated; but then, there would be too much uninteresting water in the foreground. Trimming off three-quarters of an inch of foreground and adding three-quarters of an inch of sky would remedy this defect. The composition would be much improved if the boat were backed out of the picture until the front margin cut through the center of the boat-cover. Then, eliminating the post, the curving gunwale of the boat would catch the eye and lead it to the right end of the wharf, whence it would travel over the building and out of the picture at the left margin.

Clarence A. Pierce.

The picture, as a whole, has an unpleasant look of flatness which might be improved, by printing upon a more suitable grade of paper. The balance appears faulty; the boat in foreground is badly placed, so much so as to be obtrusive; probably camera was too near when exposure was made, and generally spoiling the perspective. Small boat in distance, at end of pier, could be advantageously dispensed with, as well as the post—or whatever it is—at the extreme right of picture.

Lindsey Bourke.

If this is intended for a record-picture of a motor-boat, there is too much diversified background. If it was intended for a picture of a fishing village, then there is too much motor-boat. The combination is a failure and cannot be satisfactorily unscrambled. I believe the maker was attracted more by the atmosphere and lighting he has rendered so well, than by anything else. There is included within the area one and one-half inches in from the right margin, and two inches down from the top, the material for a pleasing little picture of a misty water-front scene. I believe that this nominates me brigadier-general of the trimming-brigade.

Richard J. Grace.

XUM

OUR ILLUSTRATIONS

WILFRED A. FRENCH

THE series of bird-photographs that appears in this issue serves to bring to the reader's attention the very best book on the photography of wild song-birds of which I have any knowledge. Reference was made to this work, by Francis Hobart Herrick, last June, but not in time to enable PHOTO-ERA readers, who are natural-history photographers, to apply that expert's simple and successful method during the mating-season. An interested reader suggested, therefore, that an important chapter of Mr. Herrick's remarkable book be reprinted, together with a number of suitable pictures, in an early spring-issue of PHOTO-ERA. This has been done, and the results will doubtless stimulate bird-lovers, who read this issue of the magazine, to unwonted activity. Although Mr. Herrick engaged in bird-photography as long as ten years ago, the time when his book was published, his pictures have never been surpassed in beauty and technical excellence. The time has passed when photography should be blamed for the frequent wretched presentation of wild birds or small animals—the main subject in an unfortunate attitude, badly lighted, horribly blurred, nearly obscured, and relieved against a spotty, messed-up background. Such inexcusable horrors look out of place in a first-class photographic publication, and no self-respecting camerist can afford to be identified with such ludicrous attempts. Fortunately, there are several easy methods to obtain photographs of song-birds—Mr. Herrick's being one of the best—that all the camerist needs is the simple equipment and a fair degree of patience, vigilance and skill.

The picture of the brown thrush, that appears on the front-cover and on page 185, suggests the following verse that met my eye a few days ago—

Nightingales sang yesterday,
Now the larks are singing,
Mystic meaning has the lay,
New-born rapture bringing.
Springtime! what a magic spell
Through the soul is going!
And hushed Nature heard it swell,
All the buds are growing.

The data for Mr. Herrick's pictures may be obtained by a careful reading of the article, "An Ideal Method of Bird-Photography," page 179, in which, under the proper headings, detailed information may be found.

Frederick B. Hodges, known to PHOTO-ERA readers through his delightfully poetic camera-walks through forest and meadow (see "The Brook," August, 1913; "The Road," July, 1914; "The Lake," June, 1918, and "The Curve in the Road," January, 1919) with charming and appropriate illustrations from nature, contributes this month his latest, "The Charm of Discovery." Mr. Hodges takes the reader into his confidence and shows him the way to a deeper appreciation of some of Nature's neglected byways and moods. He who has not the gift to perceive the many changing aspects of the great diversified outdoors, will be glad to have these secrets revealed to him. He can find no better teacher than Mr. Hodges who, with pen and camera, can present the subject with exceeding eloquence. He will kindle in the breast of the picture-lover a profound feeling of sympathy and admiration for the things that, somehow, escape his notice. He will read and reread the inspired lines of "The Charm of Discovery" and, perchance, discover a new and permanent beauty in the author's pictured impressions. Data:

"The Birch-Trail," frontispiece—September, 4 P.M.; sunlight; 8 x 10 Century; 11½-inch Tessar lens; stop, F/32; one second; Eastman Portrait Film; pyro developer; print on Azo; clouds printed in.

"A Pasture-Road," page 170—April, about 2.30 P.M.; 4 x 5 Kodak; rapid rectilinear lens; time-exposure; old paper stripping-film; pyro developer; printed on Azo; picture made many years ago; data incomplete on that account.

"The Old Farm-Roller," page 171—November, 4 P.M.; poor light; 5 x 7 Century camera; 8¼-inch Plastigmat lens; stop, wide open; 1/25 second; ortho plate; hydrochinone developer; printed on Azo paper.

"The Deserted House at Sunset," page 172—October afternoon; bright, sun just over house behind clouds; 8 x 10 Century camera; 11½-inch Tessar lens; stop, F/16; ½ second; ortho plate; pyro developer; print on Azo paper.

"Moonlight at the Old Farm," page 174—October, late in afternoon; poor light; 5 x 7 Century camera; 8¼-inch Plastigmat; stop, wide open; 1/25 second; Stanley plate; hydrochinone developer; print on Azo paper.

With regard to his methods of working Mr. Hodges writes, "I put in the cameras and Mrs. Hodges puts in the luncheon and we are off in my little 'flivver'. Many times we leave the car and roam about looking for pictures. I find many beautiful subjects in this way; but very often I cannot make the pictures until a different time of the day or when there is a more subdued or brighter light, as the case may be."

Amid the turmoil and wrangling of individuals and factions, of states and nations, as to the ultimate fate of ravaged Europe, no reference is made to the Savior of the world!. . . Materialism reigns supreme, also materialism in its baser form—political intrigue.

In place of the customary symbol of the approaching Easter season, PHOTO-ERA offers a pictorial interpretation of a devotional subject which no doubt will be welcomed by many of our readers, page 177. The artist, W. Stelcik, inclines to themes of a serious character, showing deep thought and poetic feeling in all his work. This is the first picture of a religious character that he ever sent to PHOTO-ERA. It received Honorable Mention in the "Still-Life" competition, May, 1919. His communion-service is presented in a sincerely religious spirit, and, as a pictorial composition and technical performance, leaves little to be desired. Data: Deltar Anastigmat F/4.5; used at full opening; electric light; 10 minutes; ray-filter; 5 x 7 Standard Ortho; hydro; 7 x 9 enlarged print on Azo Grade A.

The ceremony of decorating American soldiers for deeds of extraordinary heroism performed in the European war, on Boston Common by Major-General Clarence R. Edwards, former commander of the Twenty-Sixth Division and now head of the Department of the Northeast, U. S. A., has been an event of rare occurrence. The first of these occasions took place

on December 24, 1918, and was one of deep significance, and is pictured by Frank E. Colby, on page 189. The recipient of the honor at the hands of General Edwards was Lieutenant-Colonel Charles W. Whittlesey, who commanded the "Lost Battalion" in the Argonne Forest and won fame when he told the Huns to "go to hell," in answer to their demand for the surrender of his force. The ceremony was marked by the presence of a large number of distinguished officers of the army and navy, Governor McCall of Massachusetts, Mayor Andrew J. Peters of Boston, the parents and relatives of Colonel Whittlesey, a battalion of troops, and a large number of spectators.

When all was in readiness, General Ruckman, with his aid, marched out to take over the command of the battalion, then he marched down the line and took up position in the middle of the ground, escorting Colonel Whittlesey, a youthful and strikingly soldierly looking officer. General Ruckman presented his command and the band played "The Star-Spangled Banner," after which Colonel Edwin Landon, adjutant general, read the following citation for bravery, being "General Orders No. 118 of the War Department, Washington, Dec. 2, 1918":

"By direction of the President, under the provisions of the act of Congress approved July 9, 1918 (Bul. 43, W. D., 1918), the medal of honor was awarded in the name of the Congress on Nov. 22, 1918, to the following-named officers and enlisted men for the acts of gallantry set forth after each person's name:

"Charles W. Whittlesey, major (now lieutenant colonel), 308th Infantry. For conspicuous gallantry and intrepidity above and beyond the call of duty in action with the enemy northeast of Binarville, in the Forest D'Argonne, France, October 2–7, 1918. Although cut off for five days from the remainder of his division, Major Whittlesey maintained his position which he had reached under orders received for an advance, and held his command, consisting originally of 463 officers and men, of the 308th Infantry and of Company K, of the 307th Infantry, together, in the face of superior numbers of the enemy during the five days. Major Whittlesey and his command were thus cut off and no rations or other supplies reached him in spite of determined efforts which were made by his division. On the fourth day Major Whittlesey received from the enemy a written proposition to surrender, which he treated with contempt, although he was at that time out of rations and had suffered a loss of about fifty per cent of killed and wounded of his command and was surrounded by the enemy."

As General Edwards stepped up to Colonel Whittlesey his aid handed him the medal. "I am directed by the War Department," said the general, as the medal was pinned on the breast of the officer, "to bestow upon you this medal for extreme bravery in battle. I was in France at the time your act thrilled the entire A. E. F., and it gives me great pleasure to present this medal."

With a smile, Colonel Whittlesey said: "I thank you, General." Colonel Whittlesey then took up station with General Edwards and the other officers and guests at the marker-flag and the troops marched past and were dismissed.

The picture shows the technical mastery that marks the staff-photographer of a first-class newspaper. The group is certainly well lighted—no credit to the photographer—but the viewpoint, liberal exposure and subsequent chemical operations made possible an artistically and technically creditable result. Data: Boston Common, Boston, U. S. A., December 24, 1918; 11.35 A.M.; very dull light; 4 x 5 Reflex camera; 7 1/16-inch B. & L. Zeiss Tessar Ic, F/4.5; full opening; 1/12 second; 4 x 5 Seed 30; pyro; contact-print in Azo F Hard X. Mr. Colby is staff-photographer of the Boston *Evening Transcript*.

Mr. William S. Davis is well known to readers of PHOTO-ERA for his many beautifully illustrated articles on photography afield and at home. In the present issue he calls attention to the pictorial possibilities of early spring, and the accompanying illustrations are further evidence of Mr. Davis' masterly skill and artistry. Data:

"Willows by the Waterside," page 191—April, 3.45 P.M.; soft sunshine; back combination of anastigmat wide open, effective aperture F/10; 1/10 second; Wellington Anti-Screen plate, backed.

"Early Spring," page 192—quiet day, 11.25 P.M.; soft sunshine; stop F/8; 1/5 second; Barnet Self-Screen Ortho plate.

"The Willow-Tree," page 193—April, 4.15 P.M.; soft sunshine from one side; back combination of a convertible anastigmat used at an effective aperture of F/20; Wellington Anti-Screen Ortho plate.

"Cherry-Blossoms," page 193—Early in May, 3.15 P.M.; sprig of bloom arranged in studio five feet from north light; stop, F/22; 120 seconds exposure; ray-filter; Roebuck Double-Coated Ortho plate.

"Young Foliage," page 194—made in May as the willows commenced to show good foliage-effects, 5 P.M.; clear light; stop, F/8; ray-filter; Roebuck Double-Coated Ortho plate.

Advanced Workers' Competition

THE results of any competition, particularly of one so uncertain as a photographic one, are difficult to foretell. There are many things that mark the successful entry—subject, conditions of weather, opportunity and mood. Thus it was that the entries in the Spirit of Christmas Competition were disappointing. It is needless to inquire the reason, although many of the entries showed that attempts had been made to picture scenes of uncommon technical difficulty. Others were motives admirable in character, but failed of artistic interpretation. This is a very common fault with inexperienced workers, and is noticeable in so many crude efforts to picture themes in still-life, genre and natural history. Numerous were the elaborate and painstaking efforts to create visions of beauty around the hearth at Christmas Eve; but the violent contrasts caused by the extreme whiteness of the night-clothes of the children and the somber surroundings, failed to appear as an harmonious ensemble in the finished print. The scenes around the Christmas tree, radiant with lights and with glittering, many-hued toys, ornaments and presents of many shapes and colors lying promiscuously about—while the little ones are happy with their playthings—form a picture of surpassing loveliness, but one that scarcely lends itself to successful portrayal by the camera. The experienced photographer, however, knows how to bring order out of chaos, and how by elimination and arrangement to prepare a suitable camera-theme. Two contributions of this kind happily marked the competition.

Many well-intentioned designs in the open miscarried because, in many instances, the models were self-conscious, or awkward, or badly placed. Others fell short on account of poor judgment shown in dealing with dark masses and objects which threw the entire composition into disorder. It seems that many workers still believe that rocks and tree-trunks look right if represented as *dead-black*, whereas such a condition does not exist in nature, not even when shown in conjunction

(*Continued on page 216*)

XUM

ON THE GROUND-GLASS

WILFRED A. FRENCH

Origin of the Term Camera-Bug

No term in the English language is richer in spoken, written or mentally-reserved synonyms than "camera-bug." Since we live, move and have our being as the result of the exertions of numberless little germs or bugs, it is fitting that this matter of the "camera-bug" be traced back to the original bug. Exhaustive research reveals the fact that all such nondescript terms as "snapshooter," "button-pusher," "camera-fiend," "photo-nut," and more pointed expressions of popular approval have their origin in "camera-bug," hence the importance attached to a careful investigation of the latter term. Strangely enough, it was among the early Latin writers that I found the first authentic account of the true origin of "camera-bug." To be explicit, in Julius Cæsar's military report of his two weeks' vacation on the island of Britain appears a brief reference to Tullius Servius who received special commendation and the title of "camera-bug" for his remarkable exploit among the Welshmen. Though it is impossible for me to preserve Cæsar's flowing narrative in its original strength and beauty, I will try to give a rough translation of that part of the report which deals with Tullius Servius and how he became a "camera-bug."

"About the year 55 B.C., Julius Cæsar spent two weeks on the island of Britain. He had two very good reasons to leave the mainland; one, to explore the island; the other, to break up the monotony of his campaigns in Gaul. In command of a small unit of the invading Roman army was a centurion, Tullius Servius by name. This officer was ordered one day to scour the surrounding country for provisions, and it so happened that Mr. Servius inadvertently led his small command into a cleverly planned ambush. In view of the strained relations that existed at the time between the Romans and the Britons, a strenuous *melée* immediately took place, from which Mr. Servius emerged a prisoner. His captors proved to be members of a roving band who lived in that part of the island now known as Wales, and after several hours of marching, the Britons and their prisoner came in sight of an ancient Welsh castle. Mr. Servius was hustled promptly into a dark and evil-smelling vault to await the pleasure of his captors. As soon as the centurion was left alone, he searched every nook and cranny for a possible way of escape. At length, after a futile search, he flung himself into a corner and cursed the *camera* (Latin) or vault in which he was confined.

"The following day, at high noon, a point of light pierced the Stygian blackness of the vault. To the astonishment of Mr. Servius a blurred but, nevertheless, recognizable image of the landscape immediately adjoining the exterior of the castle appeared upon the opposite wall. At this psychological moment, several of the centurion's Welsh captors entered and beheld the image. Without even an attempt to investigate the matter, they cruelly accused the innocent Mr. Servius of being a *bwg* (Welsh) or hobgoblin. So convinced were these hardy Welshmen that the centurion possessed supernatural powers, that they scuttled unceremoniously out of the vault without stopping to lock the door. Despite the great interest which Mr. Servius usually showed in scientific phenomena, he decided instantly that he was not the man to solve this particular problem and followed hard upon the heels of the fleeing Welshmen. The aversion of these good men to *bwgs* in general and to Mr. Servius in particular was so strong, that the centurion sped on into the open country unmolested and, at length, reached the Roman lines, whereupon he hastened to report to Cæsar. At the conclusion of the interview, Cæsar dubbed the valorous Tullius Servius a *camera* (Latin)+*bwg* (Welsh), vault-hobgoblin or 'camera-bug,' as a mark of distinction."

This, in brief, is the first scientific explanation of the term "camera-bug" that has ever been attempted. Despite the fact that it required months of painstaking research to make this important discovery, I stand ready to give it freely to the public. However, lest the aforesaid public be inclined to jest at my expense, let me remind it that in thousands of homes the modern Knight of the Camera-Bug is no joke, but a stern and expensive reality. Witness the hundreds of pure white bathrooms left defiled by hypo stains; the newly calcimined ceilings blackened by flashpowder-explosions and the straitened financial circumstances of those nearest of kin. It is but just that those who suffer should have the satisfaction to know whence and how their trouble came upon them.

A. H. B.

The Impossible Moon in Art

Editor of the Ground-Glass: Your several paragraphs describing the careless way in which the young or waning moon is introduced into the sky, not only by photographers, but by professional painters, have been *illuminating* to me in more ways than one, and I thank you sincerely.

I was showing my little girl recently a copy of that fascinating work, "The Tale of the Ancient Mariner" with its many wonderful illustrations by Gustave Doré, and, although I have enjoyed these pictures many times during the last thirty years, in those spectacular skies of his, I have never taken notice whether there was anything wrong with the moon; but after reading your criticism of photographs and paintings where the moon was shown in impossible positions, I studied the appearance of Doré's moons in "The Tale of the Ancient Mariner" and found that it differed greatly from what I myself had seen in nature.

I am wondering why so great an artist as Doré should not have known how to represent correctly so simple a thing as the moon after sundown, or, possibly, at dawn. In either case, the bright convex side of the moon should *not be turned away* from the source of light (the sun), just as you have explained; yet Doré's moons appear in just that absurd way!

J. R. S.

First Black Lady—"Dat baby ob you's am de puffec' image ob his daddy."

Second Black Lady—"He suah am. He am a reg'lar carbon-copy."—*Globe.*

PHOTOGRAPHIC THRIFT

Whoever sends us a letter that we consider of practical photo-saving value, will receive from us a six-month subscription to PHOTO-ERA MAGAZINE.

Practical Saving-Methods

EDITOR PHOTO-ERA MAGAZINE: There was a time when I thought that every film accidentally turned by, without being exposed, was irretrievably lost. Now there seems nothing easier than to save it. Let us say that you have failed to expose Number Three: then finish exposing the roll, but do not wind entirely off the spool when the last exposure has been made. Instead, take the camera to a darkroom, carefully rewind, insert as in the beginning, and turn to Number Three and expose.

By practice, I am able to do this easily in the daytime in a dark closet and no light, but the only safe substitute for a darkroom can always be easily at hand. Pin two or three thicknesses of red crepe paper on the electric-light bulb, and you may work in safety. When I have been in the country, and no electric light was available, I placed a short candle inside a small lamp-chimney, and swathed the light with the same indispensable red crepe paper.

BERTHA SCOTT.

EDITOR PHOTO-ERA MAGAZINE:

When using paper-masks in contact-printing to obtain a white border around prints, it is a convenience—and saving of time and temper—to use a translucent mask instead of the usual opaque kind. This permits the outlines of the subject and edges of the negative to be seen while adjusting the mask in position. Such masks are made easily by soaking pieces of yellow "post-office paper"—procurable from any photo-supply house—in melted paraffin, afterward removing the surplus by placing the sheets between blotters and pressing with a warm, but not hot, iron. A number of such sheets may be kept on hand and the cut-outs made as needed; although if much work is done, it will save time to have several masks with openings of graded sizes ready to use.

WILLIAM S. DAVIS.

EDITOR PHOTO-ERA MAGAZINE:

A plate-developer, economical to use when two or three plates are developed at once, is formed by dissolving 90 grs. potassium metabisulphite, 1 oz. pyrogallic acid, 1½ ozs. dehydrated soda sulphite in 16 ozs. cooled boiled water, bottling in ½-oz. bottles—corks boiled in paraffin. Also dissolve 1¼ ozs. dehydrated soda carbonate in 16 ozs. water and keep in a pint bottle. To use, take ½ oz. of each solution to 5 ozs. water. Each half ounce of pyro-solution should develop six 3¼ x 4¼ plates. If three such plates are to be developed, use half a bottle of pyro-solution and fill the bottle immediately with cooled boiled water. The pyro-solution keeps for months in small bottles. This formula is an adaptation of Eastman's A, B, C formula. Keeping the developer in filled small bottles eliminates spoiled developer, and using fresh developer each time eliminates poor development due to exhausted developer.

CLARENCE A. PIERCE.

EDITOR PHOTO-ERA MAGAZINE:

Often it is necessary to develop and fix a few sheets of odd-sized paper that the ordinary trays will not accommodate. In such cases the following hint may be found useful. Find a cardboard-box as near the required size as possible and reinforce the corners and edges both inside and out with half-inch adhesive plaster. Then melt beeswax or in its absence paraffine and impregnate the sides and bottom. Removing from the hot wax and allowing time for any excess to drain off and the remainder to harden, a serviceable tray at a cost of next to nothing will be the result. The writer has found that a large tray made in this way is particularly satisfactory when used exclusively as a container for the fixing-bath and has used one in that capacity for several months without having to refinish with wax.

WILLARD L. VOGEL.

EDITOR OF PHOTO-ERA:

For efficiency and dispatch in unconventional trimming, discarded safety-razor blades are unique in themselves.

Neither the scissors nor the trimmer were ever found where they would prove the most useful; so I supplemented these two articles by safety-razor blades. By judiciously sprinkling two dozen of these old blades about the house and darkroom, there was always at least *one* nearby upon which I could quickly lay my hands.

One of these blades was always kept on top of the enlarging-easel. When the bromide paper was hung, I used this blade to trim along the orange image thrown upon the paper and, as a result, I always had plenty of test-paper for future enlargements. Moreover, there was little, if any, bromide paper wasted.

I use mounting-tissue almost exclusively and, in this mode of mounting, these blades help me greatly. I trim the tissue roughly with one of these blades—then mount. Any tissue that overlaps is trimmed away by the blade and there is absolutely no tissue, nor mark, to show.

Most etching-knives are too stiff: at least, I have found only one that was not—a safety-razor blade.

These blades are easily sharpened. A piece is broken off when the point becomes dull and a brand-new, needle-sharp point is the result. Of course, the cutting-point is the concourse of the longitudinal and latitudinal sides.

FRANK KING.

XUM

ANSWERS TO QUERIES

K. E. D.—**Photo-engraving is a profession in itself**; and, although related in a measure to photography, it should not be assumed that a mastery of one ensures proficiency in the other. Photo-engraving must be learned at a school or by several years' apprenticeship in some photo-engraving establishment. Our suggestion would be to enter some reliable school and upon graduation devote a year or more to the practical commercial requirements as found in the laboratories of a large engraving company.

O. E. T.—**To make moonlight-pictures on the water** is a rather difficult matter if you expect to depend on the moon. Most "moonlight-pictures" are really made by sunlight. We refer you to the article "Moonlight Photography" by William S. Davis in the November 1917 issue of PHOTO-ERA. This article will be of value to any camerist who is interested in "real" moonlight-pictures.

J. B. H.—**We know of no cement that can be applied successfully to the back of a wet print.** We believe that you will obtain the best results by letting the squeegeed print dry thoroughly on the squeegee-plate and then apply dry-mounting tissue. It is then possible to strip print and back off together; and, by moistening the dry-mounting tissue, you can mount the print anywhere you like with every assurance of success.

J. C. D.—**The length of period of fixation** depends on the thickness and hardness of the gelatine-emulsions which vary with different makes and kinds of dryplates. It must also be remembered that the temperature of the fixing-solution affects the length of the fixing-time. The hypo-bath should not be too cold in winter; also, while dissolving, alum develops a lower temperature, which should be taken into account in timing the fixation-period. The importance of the fixing-bath is often overlooked and of prime importance are the purity of the chemicals that compose it and the time given the bath to perform its work thoroughly.

B. D. F.—**The use or omission of the hyphen in photographic titles** is of importance. In your case the difference between the title "Reading Girl" and a reading room is that the girl can read, whereas the room cannot. Evidently, you refer to a reading-room, which is a place where people read—exactly as a dining-room is a place where people dine, "dining room" being an anomaly.

H. S. W.—**The camera-vibration** that you mention is evidently caused by a faulty focal-plane shutter. It is possible to make slower exposures than one-sixtieth of a second with a focal-plane shutter. Of course, it is rather more difficult to make slow exposures with a focal-plane shutter because the camera-mechanism is heavier than that necessary for a camera equipped with a between-the-lens shutter. With practice and with a focal-plane shutter in perfect order it should not be a difficult matter to make exposures of one-sixteenth of a second without the negative showing a trace of motion by vibration. Much of the success with a reflecting-camera depends on the camerist's ability to release the focal-plane shutter without a jerk—unintentional or otherwise. Many hand-camera workers overcome a tendency to "flinch" by inhaling deeply and holding the breath until after releasing the shutter.

C. D. R.—**Ammonium persulphate reducer** is more even in its action on all parts of the negative than most reducers. Moreover, it seems to have a tendency to attack the denser rather than the lighter parts of a negative that is badly overexposed. The formula for persulphate usually recommended is one part of ammonium persulphate dissolved in twenty or fifty parts of water. One drop of sulphuric acid per two ounces of solution is added to make the action more regular. When reduction is complete, the action can be stopped at once by placing the negative in a five per cent solution of sodium sulphite. A stock-solution of persulphate-reducer suggested by Mr. H. W. Bennett in *The Amateur Photographer* is the following: "Ammonium persulphate, 1 ounce; sodium sulphite, 96 grains; sulphuric acid, 48 minims; water, 10 ounces. For use, dilute 1 part with 9 parts of water. A final wash is necessary, and if much reduction has taken place it is well to fix a second time."

K. S. U.—**A concentrated stock-solution of hypo** may be kept conveniently in the form of eight ounces of hypo to the pint. This can be then diluted with its own bulk of water to fix negatives or three times its bulk to fix prints. There is no need to use greater strength for negatives than for prints, although the proportions given are those usually given.

W. J. B.—**To introduce a figure into a group.** The best way to do this is to make an enlargement of the group and enlarge the negative of the single figure proportionately. Then cut the single figure out and paste it on the group in the position desired. Next, work up whole print if necessary and make a negative the size required. Due care should be taken to avoid including the shadow of the cut edge of the single figure. This method is preferable to double printing direct from the two negatives.

D. W. H.—**To remove the emulsion from old negatives** dip the plates in nearly a boiling solution of caustic soda. This removes the emulsion very quickly; but we know of no method as rapid that will also enable you to recover the silver or the gelatine. We are of the opinion that any silver thus recovered would be of little commercial value. Moreover, the gelatine is not considered to be worth saving.

B. W. K.—**To remove varnish from a negative** place the plate in a glass or earthenware-tray—not one made of celluloid or composition—and cover the negative with methylated spirit or, if unobtainable, wood alcohol to a depth of about one-half inch. A sheet of glass—an old negative will do—should be placed over the tray to prevent too rapid evaporation. It is advisable to rock the tray every few moments. In about one-half hour rub the varnished side of the negative gently with a tuft of cotton. Usually, most of the varnish is dissolved; but sometimes it may take longer if the varnish is hard or old. Slight heat often helps the reaction. A second and fresh bath will virtually always remove all trace of varnish. After the second immersion in methylated spirit or wood alcohol the plate should be washed in gently flowing water until the greasy appearance disappears. The negative may then be reduced by the usual methods and finally re-varnished if desired.

EVENTS OF THE MONTH

Announcements and Reports of Club and Association Meetings, Exhibitions and Conventions are solicited for publication

Photographs for the History of the War

WAR DEPARTMENT, OFFICE OF THE CHIEF OF STAFF
WASHINGTON

MARCH 8, 1919.

WILFRED A. FRENCH, Esq.,
367 Boylston Street,
Boston, Mass.

My dear Mr. French: The March issue of PHOTO-ERA is before me. Permit me to thank you for your article entitled "Photo-Era's War-Prints Competition," as well as for your patriotic co-operation not only in instituting this competition, with the assistance of Mr. Herbert B. Turner, but for your many and valued responses to my various demands upon you.

The photographers of this country have rendered a noteworthy public service in assisting this office in the compilation of the official pictorial history and record of the war. You may be interested to know that at the present time, this office has collected approximately 450,000 photographs; many of these are of great value. It may be presumed that, in the course of time, these files will be drawn upon when the official pictorial history of the war may be published.

The gathering together of this material has been a big task, and its accomplishment would have been difficult, if not impossible, without the patriotic co-operation of American photographers generally.

With sincere personal regards, I am,

Sincerely,

KENDALL BANNING,
Major, General Staff,
O. I. C., Pictorial Section,
Historical Branch, W. P. D.

Fifty Years in Photography

MR. GEORGE H. HASTINGS, past-president of the Photographic Association of America, and also of the Photographers' Association of New England, has the enviable distinction of being a professional photographer of fifty years' experience. As president of the above-mentioned associations, he served with marked success, and was a credit to the associations and to himself. The many friends and admirers of Mr. Hastings are congratulating him on his long professional career and his well-deserved success. At present, Mr. Hastings is associated with Mr. Orrin Champlain under the firm-name of Champlain and Hastings, successors to The Chickering Studios, 21 West Street, Boston, Massachusetts.

The Utah Camera Club

IN line with its policy of seeing the work of the leading pictorial photographers of the country, the Utah Camera Club is showing an exhibit of carbon-prints by W. H. Porterfield, of Buffalo, N. Y., one of the foremost pictorial photographers of the country.

Although only in the third year of its activities, the Utah Camera Club is a live organization and is initiating a lot of interest in pictorial work among its members. It will hold its Third Annual Exhibit in April.

Boston Y. M. C. U. Camera Club

THE annual members' exhibition of the Boston Young Men's Christian Union Camera Club was held at 48 Boylston Street, March 5 to 29. There were 84 prints by 9 exhibitors. The pictures seemed to be of the usual high standard attained by the club, although the work of several interesting members, including Herbert B. Turner and Chester Grillo, was not represented. War duties was the excuse, and that is sufficient. Even so, the prints on exhibition were made under conditions that cannot be called favorable, for art is at a low-water mark in these days, and initiative, interest and encouragement do not prevail as they should.

The exhibition, this year, differed from its predecessor in several respects, aside from the absence of several excellent workers. Mr. G. H. Seelig had the largest individual exhibit, which consisted of landscapes and genre-subjects, the former predominating. He also captured the majority of the prizes, whereas Arthur Hammond, a professional, enjoyed this pleasant experience last year. Mr. Seelig showed consistent improvement in his work, a circumstance due to his innate poetic feeling, true artistic expression and an evident desire to progress. His landscapes incline towards simplicity of design and breadth of style, but occasionally approach excessive subordination of receding planes—a tendency which, unless checked, may spell disaster. W. J. Jaycock, a new-comer, arrested attention by a series of striking pictures of seagulls in flight, a branch of pictorial work confined hitherto to workers on the Pacific Coast.

The prizes (blue and red ribbons) were awarded as follows: Landscapes, first, G. H. Seelig, "Dreary December," a decorative winter-scene; second, G. H. Seelig, "Fenway in Winter"; Honorable Mention, A. H. Blackington, "Can Willie come out?"—two small boys standing out in the snow and calling for their playmate in a house opposite.

Marines, first, W. J. Jaycock, "A Break in the Clouds"; second, W. J. Jaycock, "Stormy Day at Great Head, Maine."

Miscellaneous, first, G. H. Seelig, "Indoor Sports," a Japanese doll lying prostrate before an idol; second, W. J. Jaycock, "Out of the Clouds," a seagull in flight.

Portraits, first, Arthur Hammond, "Portrait of a Boy"; second, Louis Astrella, "Sibylla," portrait of Mrs. Astrella.

Genre, first, G. H. Seelig, "Is it Deep?"; second, G. H. Seelig, "The Steam-Drill."

The names of the judges are Henry Eichheim, C. King and Dr. H. B. Shuman.

Canadian National Exhibition at Toronto.

THIS exhibition, to be held August 25 to September 6, 1919,—international in character,—will be under the direction of the Toronto Camera Club and will be known as its Twenty-Eighth Annual Exhibition. A cordial invitation is extended to pictorial photographers throughout the world to submit prints. The Canadian National Exhibition has the largest daily attendance of any annual exhibition in the British Empire and for this reason the pictorial photographer

XUM

will have an exceptional opportunity to display his art. The largest room in the Graphic Arts Building has been placed at the disposal of the club, and in it four or five hundred pictures may be hung to advantage. The Toronto Camera Club is affiliated with the Royal Photographic Society of Great Britain and it has held many creditable exhibitions, with entries from all over the world. All entries close positively July 19, 1919. For entry-forms and other information address A. S. Goss, Secretary Exhibition Committee, Toronto Camera Club, 2 Gould Street, Toronto, Canada.

For Secretaries of Camera Clubs

When members of camera clubs or other photographic institutions fail to find, in Photo-Era, references to the activities of the organizations in which they are interested, it is not always the fault of the magazine. Sometimes the secretary forgets to notify the publisher, or, when he remembers to do so, it is *after* the event, and too late!

A really efficient secretary, or the publicity-man, should remember that the June issue, for instance, of a monthly periodical is not published in June, but during the *preceding month*. In fact, a monthly magazine goes to press *several weeks before the date of issue*, and all the material intended for that particular number must be in the publisher's hands *earlier than that*.

If there is a catalog, or list of exhibitors, of a photographic exhibition, the publishers of photographic periodicals should be among the first to receive copies.

Therefore, those who are interested to have the activities of their organizations published in the photographic press, should see to it that the person in charge of the publicity-department is "on the job."

Newark Camera Club, Inc.

We have received two interesting circular letters from Mr. Louis F. Bucher, secretary of the Newark Camera Club, Inc., 878–880 Broad Street, Newark, New Jersey. One of them announces a competition on lantern-slides between the camera clubs of America. The Newark Camera Club offers a sterling silver and a bronze medallion to the two clubs which submit the best sets of lantern-slides. Camera club secretaries should write to Mr. Bucher for further particulars and for the rules governing this interesting competition. The second letter—copies of which may be obtained from the secretary—asks the camera clubs of the United States to express an opinion with regard to the advisability of establishing an association to be known as "The Associated Camera Clubs of America." The Newark Camera Club believes that such an amalgamation would be of great benefit to amateur and professional photographers who are members of camera clubs or photographic organizations. Without a doubt such a discussion should be of interest and benefit to every camera club in America. The Newark Camera Club is to be congratulated on its attempt to further the interests of photographers in the United States. If this idea appeals to any camera club it should instruct its secretary to write to Mr. Bucher without delay. Any additional suggestions will be received cheerfully and gratefully.

Our Illustrations

(*Continued from page 211*)

with snow. As a matter of fact, sufficient light is reflected from the snow to give character to the darkest objects in proximity, and complete blackness is an impossibility. If any one doubts this statement, let him investigate and be convinced.

In his admirable genre, page 199, Dr. Charles B. Piper has told an engrossing Christmas-story. True, the speculative mind may ask just what the man is doing. Indeed, there is a little room for the jocosely inclined, and everybody is merry at Christmas-time. In a lighter print the heavy blacks would be much relieved and the man's complexion be in a higher key, without imperiling the vigor of tone in the present original. Data: December, at 4 p.m.; heavy snow; Ica Cupido, 12-cm. Zeiss Tessar; at F/4.5; 1/25 second; developed by time and temperature method in Duratol-Hydro; enlarged on Contrast Cyko.

The scene around the Christmas-tree, page 201, seems to have had no terrors for Mr. Stelcik. The arrangement of the different trying parts is excellent. Harmony and unity prevail and there is a good scale of gradations. The children seem really absorbed in their occupation—unconscious of the presence of the photographer. Data: Daylight; one window; 5 x 7 Conley camera; F/4.5 Deltar lens; stop, wide open; one second; Standard Orthonon plate; hydrochinone developer in tray; print on Kruxo soft, Buff.

Beginners' Competition

The pose and expression of the little Miss are, indeed, praiseworthy. The lighting is likewise creditable, and this permits the eyes to appear most advantageously. It is delightful to note how well this beginner has managed the hands—a problem that embarrasses even a professional! All credit, therefore, to this successful worker in the field of home-portraiture! Data: January 11, a.m.; good light; 4 x 5 Korona; 7-inch Voltas; stop, F/8; 3 seconds; 4 x 5 Seed 27; M. Q.; contact print on Artura Iris C.

In his picture, "Bashfulness," page 207, T. P. Payne has displayed a degree of technical ability of which many an advanced worker would be proud. The plastic effect is remarkably fine, and fleshtints are above reproach. The figure would look better if placed a little to the right of the center. The foreshortening of the head is unfortunate. This could have been obviated had the chin been raised a little, although, of course, not much can be done with children while under the influence of emotion, expecially when being photographed. Data: October 20, 1918; bright light; Auto-Graflex, Jr.; 2¼ x 3¼ camera; 4½-inch lens; stop, F/8; 1/160 second; Standard plate; developer M. Q.; enlarged on Cyko Buff.

"Blustering March," by John Paul Edwards. The data of this picture, which appeared on the front cover of March Photo-Era, arrived too late for insertion in that issue. As the data may be of interest to many, they are given herewith. March, 5 p.m.; dull light; 4 x 5 Sanderson camera; 8-inch Struss lens; stop, F/5.5; three-time color-screen; 1/15 second; Standard Orthonon plate; Adurol developer; print on Illingsworth Bromide.

Our Contributing Critics

The picture offered this month to our contributing critics for consideration is "The Critic," by W. E. Fowler. The author is conscious of the defects in his print and has enumerated them in a letter to the Editor. The subject is inspecting her father's films after development—a common scene in the gentleman's home—and, of course, she then proceeds to make comments on the results, hence the title of the print. Data: Sun on the window, 11 a.m.; 2¼ x 3¼ Auto-Graflex, Jr.; 5-inch Verito lens; stop, 4/8; 4 seconds; Premo filmpack; pyro in tank, 65 degrees for twenty minutes; enlarged on Royal Bromide Rough.

XUM

LONDON LETTER

CARINE AND WILL CADBY

STILL they come! these big exhibitions of war-photographs. We really hesitated whether we should mention the Exhibition of Canadian Battle-Photographs now open at the Grafton Gallery, being afraid to weary our readers with what sounds a little like repetition of the same thing. But in spite of our fear to become tiresome, we are sure that no one interested in the trend of modern photography can afford to ignore these shows. They are some of the most valuable and suggestive emanations of our craft. They have an extraordinary big attendance,—there is usually a long line waiting for admission,—they are treated seriously by the press and are a decided factor in influencing public opinion. Another point of interest to the photographer is that they go to prove that, despite every obstacle, photography has forged ahead during these war-years, and that even the standard of snapshots is a much higher one. The public does not in the least realize why these photographs are so much more pleasing and convincing than the old-time greatly enlarged snapshots. People do not take into consideration that the lighting, composition and general artistic effect have been studied by an expert and that, although they are snapshots—or what are popularly imagined to be snapshots—their selection has been made by one who understands pictorial values.

There is one picture, most decidedly not a snapshot: "The Cemetery of the Canadians at Étaples," and there is an interesting frieze in the Central Room, 200 feet in length, representing in panorama-form the hundreds of guns captured by the Canadians in their final advance. There are two views of Arras about which there is an interesting note. They were snapped from parachutes coming down from observation balloons. Unluckily, one of the parachutists made a bad landing and broke a leg. There is also an enormous enlargement of the momentous telegram, dated November 11, 1918: "Shortly before dawn this morning Canadian troops of the First Army (General Horne) captured Mons."

The majority of the photographs are colored, and the public again imagines that it is looking at real color-photography and goes away saying how wonderful and lifelike it is!

On January 20 we responded to an invitation issued by Miss Agnes B. Warburg, and went to see her "one-man" show at the Halcyon Club. In spite of its being one of the worst of what has been a series of drenching and unpleasant days, the gallery was filled with visitors. We were at first a little disappointed, having for some reason expected a color-show. It is however an extreme example of how work by one person gains by being seen all by itself. The lack of something in one picture seems somehow to be made up by the gain in the next, and so on. We do not suppose that the audience would allow that there was anything lacking in any of the prints, being of the appreciative and not of the critical turn of mind. It always strikes us that Miss Warburg is struggling to express something for which she finds the art of the camera too limited. In all her work there are suggestions and ideas that, somehow, do not assert themselves, for which reason it is a good deal more interesting than the direct and explicit photography of a great many women. The lightest and, most decidedly, the most popular panel of her exhibition was that of the child-studies. Some we had seen before, but she had added to this collection. The little verse under each suggests that they shall not be taken too seriously and are also very much to the point. Perhaps there is one exception when these rather bloodthirsty words:

"Bold Indians we
"As ever went,
"Fly if you see
"Us leave our tent."

are written under a portrait-group of two placid, tidy children sitting outside an improvised wigwam.

Most of the exhibition-prints are on bromide paper, which printing-medium, Miss Warburg told us, she is now using quite a lot. It is amusing how the once-despised bromide is coming into its own. Will it hold on when normal conditions return and other processes are to be had as easily?

Now that the war is virtually over, the mere civilian is getting news of the late activities at the various fronts that had hitherto been withheld. The Royal Air-Force, in an official publication, has been letting us in to the photographic secrets of its flying-men, and giving us some idea of the immense amount of work that has been done. On the western front alone, during the last ten months of war, 264,605 negatives were made in the air over German territory, and 5,800,000 prints were made for the Intelligence Staff. It was no unusual thing for 11,000 negatives to be made in a week before an important advance. We also learn that the most recent types of R.F.C. cameras have a steel-chamber containing an automatic device for changing the plates after each exposure. The mechanism was worked by a very small propeller at the side of the machine. The pressure of a lever by the observer brought into action the mechanism which exposed one plate and brought a new plate into position. This device has enabled many valuable photographs to be made under heavy fire from the air and ground. The Royal Air-Force specialized in thin negatives, which enabled prints to be made in about three seconds.

But to return for a moment to the prints and negatives made, which leads us to the subject of future air-maps and is absorbingly interesting. The outsider stands aghast at the enormous numbers, and is puzzled at the use to which they are put; but when we grasp the fact that the airman has gradually been brought by experience to rely on photographic *air*-maps as opposed to *land*-maps, we begin to understand the problem, and grasp the big part that photography is going to play in the guidance of airplanes over land. Compass, air-logs, and *photographs* will be the navigating-necessities of the future. In ordnance-survey, maps—unimportant things, from the flyer's point of view—that often cannot even be seen from the air, are given prominence; whereas objects that are clearly noticeable from aloft are often omitted altogether. Now, the photographic map represents virtually *what we see*, and it is for this reason that all countries will have to be systematically air-photographed so as to obtain reliable charts for pilots, which, placed on horizontal rollers in

(*Continued on the next page*)

BOOK-REVIEWS

Books reviewed in this magazine, or any others our readers may desire, will be furnished by us at the lowest market-prices. Send for our list of approved books.

PHOTOGRAMS OF THE YEAR 1918–19. The Annual Review of the World's Pictorial Photographic Work, Edited by F. J. Mortimer, F. R. P. S. 32 pages text. 86 halftone reproductions. Price, paper-covers, $2.00; cloth, $2.50. Postage according to zone. London: Iliffe & Sons, Ltd. New York: Tennant & Ward, 103 Park Ave., American agents.

The current number of this pictorial annual comes to hand in its usual makeup as to text and illustrations. Naturally, there is a slight reduction in the quality of the halftones which is due, no doubt, to unfavorable conditions caused by the war. Most of us, several thousand miles away, have not the least conception of the prevailing industrial conditions in England. The people over there are facing hardships unknown to us; and, though actual hostilities between the Allied nations and Germany have been suspended—armistice is not peace—a justifiable feeling of apprehension still exists in France and England. It is therefore highly creditable to the coolness, pluck and determination of our English cousins that business and industrial activities are maintained as well as they are. Despite the relatively blissful and comfortable state in which we, over here, live at present, we cannot but see the effects of the war in one way or another. The pictures in the present issue of *Photograms* are unusually interesting and instructive, nevertheless. The editor, Mr. F. J. Mortimer, describes in graphic terms the well-nigh discouraging conditions he had to face in order to procure suitable and attractive pictorial material for his annual. His remarks will be found illuminating.

The British pictorialists uphold their well-known artistic standards and show a marked tendency towards diversity of motives. Thus, Mr. Mortimer's only contribution is a genre—"The Gate of Good-bye"—a group of English Tommies and the sweethearts at the entrance of a railway-station. It is a masterpiece. Charles Job is identified with a marine, "In Dock"—forceful and filling; Hugh Cecil with an engrossing genre, "Curds and Whey," and H. Y. Sümmons, with a striking decorative scheme, "Tempest." Of newcomers there are not a few, which is true particularly of the Americans who are twenty-two strong. In novelty and mastery of subject are Alice Boughton—"Pierrette"; Clarence H. White—"Inga Sontum"; W. A. Hudson—"A Basket of Roses"; C. W. Christiansen—"The Sleeping Lion"; E. M. Pratt—"The Capitol," published in January, 1919, PHOTO-ERA, having received first prize in our "Architectural" Competition; W. G. Fitz—"City Hall, Philadelphia"; E. H. Weston—"Vaudeville"; the late W. H. Rabe—"Nocturne"; John Paul Edwards—"A Beach Frolic"; Dr. R. S. Lovejoy—"A Summer-Symphony"; Anson Herrick—"The Bank"; Ralph W. Brown—"Little Black Dog"; H. C. Torrance—"Carnegie Technical School, Pittsburgh"; Arthur F. Kales—"A Magazine-Cover," and Louis Fleckenstein—"Betty," which is a highly creditable showing of the United States.

The text has been made eminently interesting by "The Year's Work," the editor; "Observations on Some Pictures of the Year," W. R. Bland; "The Royal Photographic Society and Pictorial Photography," R. Child Bayley; "Some Aspects of Landscape and Portraiture," Anthony Guest; "The Importance of the Beginner," Ward Muir, and articles by authoritative writers on pictorial photography in the air, in Canada, the United States, Scandinavia, Holland and Spain.

At this writing, the supply of the books of local dealers and the American agents was exhausted, despite the necessitated advance in price.

PHOTOGRAPHY AND FINE ART. By Henry Turner Bailey. 96 halftone reproductions of original photographs and oil-paintings. Quarto. Large octavo. 124 pages. $1.50. Worcester, Mass.: The Davis Press.

The author of this interesting work is a professional art-critic and eminently qualified to instruct the art-student or the photographer ambitious to produce artistic pictures. He states that the aim of his book is esthetic, and that it contains nothing about the mechanical or chemical technique of photography. He has tried to state clearly and to illustrate adequately those principles of composition and elements of beauty which, in his own experience and in the close observation of the work of others, he has found to be illuminating and dynamic. He says that photography has led thousands upon thousands of people into the magic world of pictorial art, where the masters of painting freely offer radiant companionship and perennial joy to the open-minded lover of beauty. It is the author's hope that his book may prove helpful in shortening the journey of the lusty and hopeful photographer from the Land of Longing to the Land of Heart's Desire.

In twelve chapters, Mr. Bailey takes the student from the crude beginnings in technical and pictorial understanding, through various phases of artistic development, to a clear comprehension of esthetic beauty. By examples of faulty construction and inadequately treated motives, he demonstrates what the student-camerist should avoid and how he can improve his opportunities. The criticism is constructive, helpful and encouraging. The subjects under consideration comprise record-photographs, landscapes, flowers, architecture, genre, portraiture and illustrations, with the author's decided preference for straight, sane methods. Mr. Bailey dwells constantly on the importance of composition, which he regards as three-fourths of pictorial art and the largest concern of the photographer. He deprecates the latter's practice of imitating with living models well-known masterpieces in painting, and places reproductions of the originals and imitations side by side in quite a convincing way. In the selection of photographs that fulfil his ideals as works of art, Mr. Bailey has shown excellent judgment, so that the student in pictorial expression will have a high artistic standard to guide him.

(*Continued from the preceding page*)

the airplanes, will be rolled up as the journey progresses and one particular bit of the map is done with.

If it is not already, air-map-photography will become a very expert and skilled business, and it will be interesting to watch what are the particular lightings that are most suitable. All photographers know how tremendously a different light will alter a subject, and it would seem that this factor will be even more important in air-photographs than elsewhere; for under certain conditions (for instance, with the sun quite vertical) the landscape must assume a very different appearance than when seen under the rays of the sun.

RECENT PHOTO-PATENTS

Reported by NORMAN T. WHITAKER

THE following patents are reported exclusively for PHOTO-ERA MAGAZINE from the patent-law offices of Norman T. Whitaker, Whitaker building, Washington, D. C., from whom copies of any one of the patents may be obtained by sending fifteen cents in stamps. The patents mentioned below were issued from the United States Patent Office during the month of January, the last issues which have been disclosed to the public.

Samuel E. Sheppard of Rochester, N. Y., has been granted patent, number 1,290,794, on Colored Photographic Element and Process of Making the Same. Rights have been assigned to Eastman Kodak Company.

A patent on a Photometer, number 1,290,695, has been granted to Howard G. Aylsworth, San Francisco, Cal., assignor of one-third to George A. Doland and one-third to William Wolf, San Francisco, Cal.

William A. Dwyer of Chicago, Illinois, inventor of a Blue-Print Washing Machine, patent, number 1,290,134, has assigned his patent-rights to William H. Miner, Chazy, N. Y.

Patent, number 1,291,004, Photographic Camera-Back, was granted Charles E. Hutchings, Rochester, N. Y., assignor to Eastman Kodak Company.

Ernest Howard Farmer of London, England, has received patent, number 1,291,452, titled Photographic Camera.

Patent, number 1,291,405, on a camera, has been issued to Lawrence K. Champeau of Orange, N. J.

Method and Apparatus for Developing Film-Cartridges, patent, number 1,291,453, issued to Ernest Howard Farmer of London, England.

Archibald McIntyre Maxwell of Ithaca, N. Y., received patent, number 1,291,994, on a Photographic Camera.

The International Patent-Licensing Corporation of Chicago, Ill., a Corporation of Delaware, has by means of assignments secured patent, number 1,292,036, entitled Camera, invented by William A. Peters of Chicago, Ill.

George I. Kester, Rochester, N. Y., has invented improvements on a Photographic Camera patent, number 1,291,920, assignor to Eastman Kodak Company.

Apparatus for positioning the printing-plates on the plateholders of Photographic Printing-Apparatus has been invented and patented as, number 1,291,897, by William C. Huebner of Buffalo, N. Y., assignor to Huebner-Bleistein Patents Company, Buffalo, N. Y.

A machine for treating Photographic Prints with fluids has been invented by Cesare Barieri and Paul Carpenter of Chicago, Ill., patented as, number 1,292,230.

Alcohol and Glycerine

As it has been acknowledged that the merits of any individual become enhanced as the period during which he has been defunct increases, so the real value of a commodity is never fully appreciated until it becomes unobtainable. Two extremely useful chemicals that have undergone this experience during the war are glycerine and alcohol. The number of photographic formulæ that it became necessary to modify or abandon, owing to the "unobtainability" of one or the other, is surprising. We are glad to be able to announce, therefore, that the Ministry of Munitions states that supplies of alcohol are now available for industrial purposes; so that manufacturers should be able to have their requirements met from the usual sources without restriction, subject, as formerly, only to the ordinary Regulations of the Board of Customs and Excise. Methylated spirit is again salable to the public for domestic and general purposes. Our cotemporary, *The Pharmaceutical Journal*, in a note on the subject, states that arrangements have been made to enable producers of glycerine to supply substantial quantities for common use.—*The Amateur Photographer.*

Print-Washing

As a rule it is some little time before the presence of hypo in an imperfectly washed print becomes manifest, but sooner or later it makes trouble for the careless producer. With ordinary black bromide or printing-out paper it may be months, even years, before a general yellowing of the image or uneven patches begin to appear, but with sepia-toned bromides retribution is swift, for deterioration sets in before the work is finished, and sometimes the cause is not suspected, the paper, the bleaching solution, and even the sulphide bath being blamed, although the fault is due to improper washing. The great fact to be remembered is that Farmer's reducer is composed of ferricyanide and hypo, and that no matter in what form or for what purpose a solution containing these two chemicals is applied to a print the effect will be the same. We all know that when a print has been locally reduced the tone of the reduced part will be different from that of the remainder; sometimes only slightly and at others very noticeably. Now a very small trace of hypo in a print is sufficient to react with the ferricyanide in the bleacher, and to start reduction of the image sometimes evenly and sometimes in patches or streaks. We have seen a batch of excellent prints which should have given excellent tones turn out a wretched ginger-color from this cause alone, and not only have the badly washed prints been affected, but properly washed ones have also been spoiled by the hypo conveyed into the bleacher by the former. Unless carefully watched, many printers will trust to throwing prints into a large dish or sink and allowing a tap to run upon them, and if that tap runs for an hour they will say that the prints have been washed for that length of time. Unless one has a perfect mechanical washer there is no safe method of freeing prints of hypo except by hand-washing; that is, transferring the prints singly from one tray of water to another. Even as few as six changes of five minutes each in this way, provided that an ample quantity of water is used, will render prints safe for toning, and secure black ones from fading. There are two well-known tests for the presence of hypo, permanganate of potash and iodide of starch, and it would be well for anyone who is getting bad colors from apparently good black prints, to apply one or the other. We know of one great firm which tests every batch of prints, bromide or gaslight, with permanganate, and the results are conspicuous for their good tone.—*The British Journal.*

WITH THE TRADE

Taxes on Photographic Supplies

THE ostensible reason for levying a tax of ten per cent on cameras and five per cent tax on plates and roll-films, by Congress, is to obtain revenue. The fact that the photographers, both professional and amateur, have rendered inestimable service to the Government—notably in giving up valuable equipment and lenses, without any pecuniary or other equivalent—seems to have been ignored by certain members of the House and the Senate. It appeared that there was in plain sight an inexhaustible source of revenue, and the idea was to utilize it. Patriotic sentiment was not considered, although photographers throughout the land were entreated to give up their valuable lenses, field glasses and binoculars purely for patriotic reasons.

Moreover, the five per cent tax on plates and roll-films was imposed despite the fact that photographers—amateurs in particular—were invited to furnish the government, free and without remuneration, photographs of war-activities. Many demurred or were not interested; but, on the other hand, many from purely patriotic motives, gave up time, effort and material and contributed prints to enrich the War-Prints Division, Historical Branch, at Washington. Of course, these gallant photographers have been publicly thanked by the Government for their unsparing efforts, and they are correspondingly happy.

But, then, there was an additional tax of ten per cent on photographs, because photographs were considered a luxury! So, everybody got busy and induced his representatives and senators to have this "luxury" tax removed from the revenue-bill. The Publisher sent telegrams and letters to Congressmen, Senators and Committees, at Washington, and believes that he has contributed at least something to bring about the removal of the iniquitous ten per cent tax from the revenue-bill.

It was a narrow escape. Now, that the seemingly impossible has been accomplished, it is just as well that the entire photographic profession be considered as entitled to the credit, although we will find, here and there, individuals who take to themselves a very considerable share of the credit due.

Selling Photographic Magazines

WE have before us a letter from a dealer-friend who asks us to discontinue sending him PHOTO-ERA because it does not sell readily in his store. He hastens to explain that, personally, he believes PHOTO-ERA to be one of the best photographic magazines published; *but his customers do not ask for it*, and on that account he prefers to use his counter-space to better advantage. If this dealer pursued the same policy with regard to all the goods in his store, we do not believe that he would be as successful as he is.

The point of vital importance, which many dealers overlook, is that to push photographic magazines stimulates the customer's desire for the very goods which the dealer carries. The intelligent salesman should know each subject which his customer considers interesting, and it should be his duty and pleasure to call the customer's attention to such current articles in the photographic magazines as will help the amateur directly in his work. We have abundant proof that when photographic magazines are pushed zealously, *they do sell extremely well*, to the mutual profit of dealer, amateur and publisher.

A New 4 x 5 Pictorial View-Camera

FOR several years there has been a growing demand among pictorial photographers for a well-made view-camera smaller than 5 x 7. In October 1914 Pinkham & Smith Company, 13½ Bromfield Street, Boston, anticipated this demand by inducing a well-known camera-maker to begin the manufacture of a 4 x 5 view-camera. Unfortunately, the European war interrupted any further progress in this direction. However, the manufacture of these cameras is again in full progress and several are now on display at Pinkham & Smith Company's Bromfield Street store. All the practical features of the larger view-camera are embodied in these smaller view-cameras. Special attention is called to the four-inch square frontboard and nineteen-inch bellows-extension designed to accommodate the many soft-focus and other large lenses made for pictorial work. The intention is to equip these cameras especially for the ambitious pictorial photographer who wishes the best possible *complete* outfit at a moderate price. Further particulars are to be announced in May PHOTO-ERA.

Wollensak Verito Lens for the Graflex

FOR some time there has been a marked demand for a pictorial lens among users of Graflex and other reflecting cameras. Although the Verito Diffused-Focus lens could be fitted to reflecting-cameras, it was inconvenient to use because the lens had to be unscrewed from the frontboard before the camera could be closed. Owing to recent modifications in its construction, made by the Wollensak Optical Company, the Verito may be now fitted easily to Graflex or other reflecting-cameras and permit them to be closed properly. The flange is nearer the diaphragm, thus making it possible to close the camera with the lens in place. We believe that users of Graflex and other reflecting-cameras will be eager to obtain a Verito for their pictorial work this coming season. Dealers will do well to get in touch with the Wollensak Promotion of Trade Department, Rochester, New York.

Now is the Time to Advertise!

THOSE dealers and manufacturers who have been consistent advertisers during the war, are now enjoying the results of their publicity-campaign. Now, there is no need of a new introduction! However, those dealers and manufacturers who—through no fault of their own—were compelled to discontinue advertising, should take the first opportunity possible to re-establish their names and products in the minds of amateur and professional photographers. "Out of sight out of mind," is an old adage that is particularly applicable to a firm or a product.

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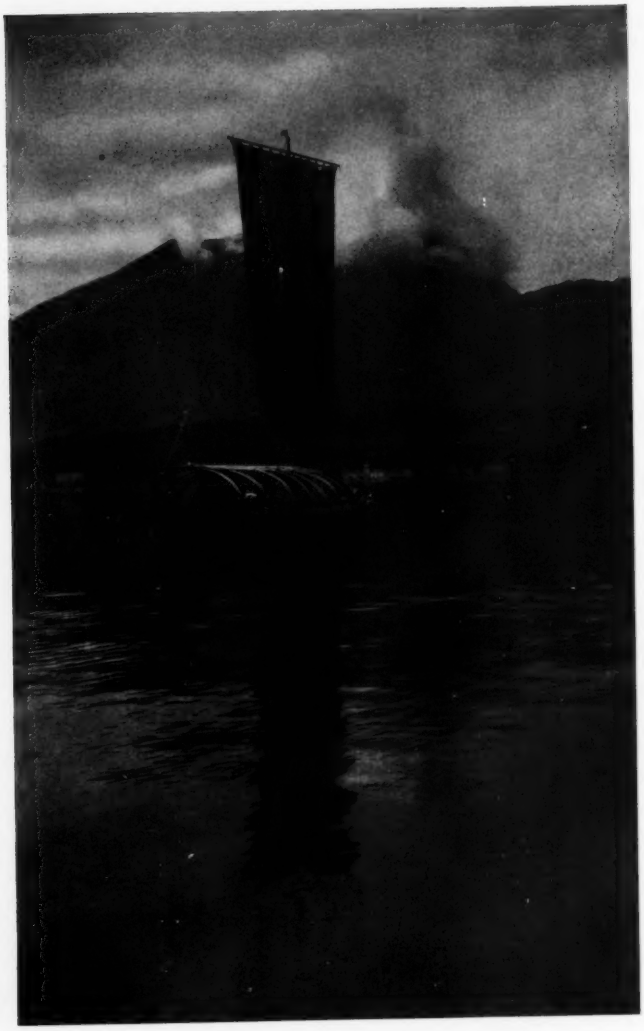

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